MOSA

GE 7000 - 7500 BS/GS
GE 6000 - 6500 DS-DES/GS

0 2 1 2

256709003 - GB

ENGLISH

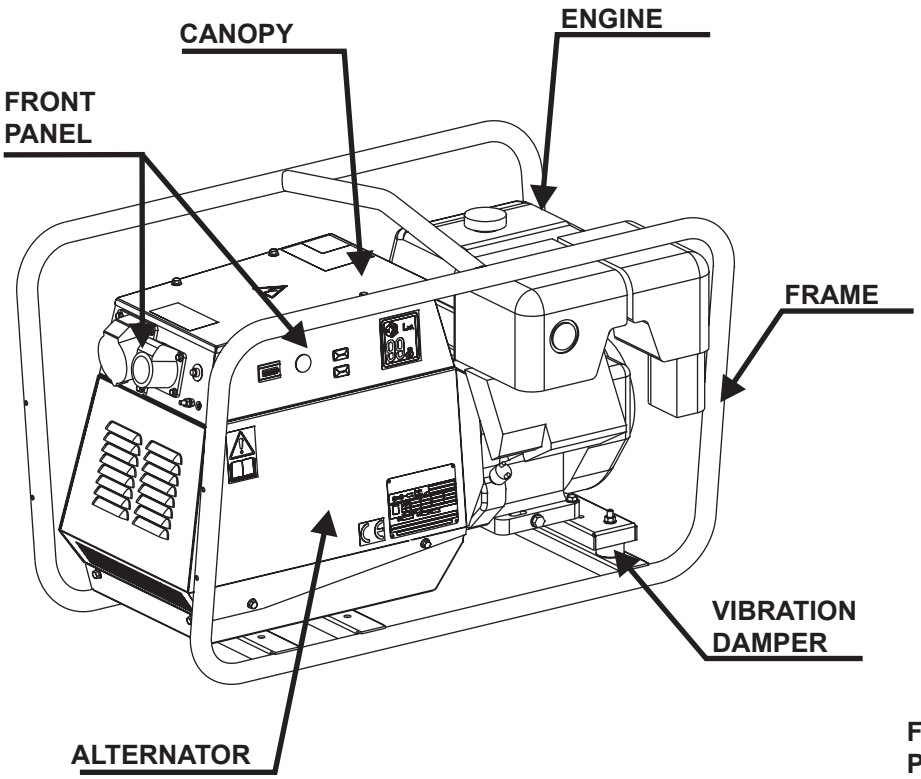
© MOSA 15/01/04 25670M00
preparato da UPT
approvato da DITE

The generating sets are units which transform the mechanical energy, generated by endothermic engine, into electric energy, through an alternator.

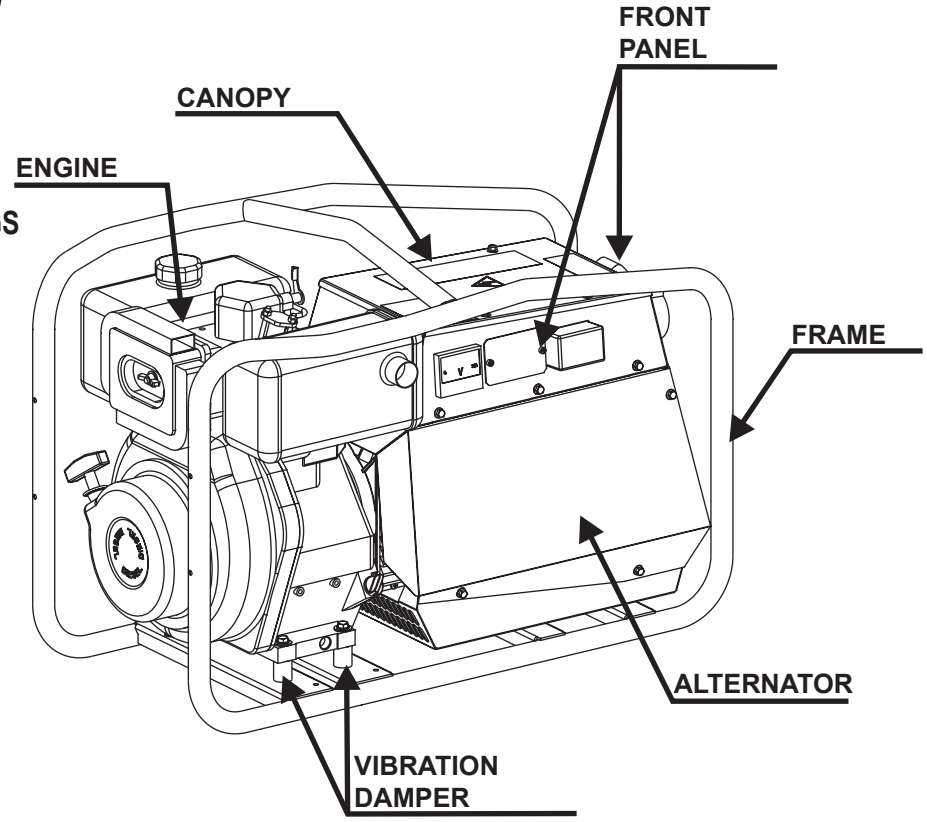
They are meant for industrial and professional use, powered by an endothermic engine; they are composed of various main parts such as: engine, alternator, electric and electronic controls, the fairing or a protective structure.

The assembling is made on a steel structure, on which are provided elastic support which must damp the vibrations and also eliminate sounds which would produce noise.

GE 7000 - 7500 BS/GS



GE 6000 - 6500 DS - DES/GS



IQNet

THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

IQNet and its partner

CISQ/ICIM

hereby certify that the organization

BCS S.p.A.

***Head Office and Operative Unit*: Viale Mazzini, 161 - I-20081 Abbiategrasso (MI)**
***Operative Units:* Via Valbrina, 17/19 - I-42045 Luzzara (RE)**
Viale Europa, 59 - I-20090 Cusago (MI)

for the following field of activities

Design, production and servicing of tractors, agricultural and green maintenance machines, engine driven welders and generating sets.

has implemented and maintains a

Quality Management System

which fulfills the requirements of the following standard

ISO 9001:2008

Issued on: 2010-10-19
Validity date: 2012-03-05
Registration Number: IT-3722

Michael Drechsel
President of IQNET

Gianrenzo Prati
President of CISQ

IQNet Partners*:
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CISQ is a member of IQNet
www.iqnet-certification.com

IQNet, the association of the world's first class certification bodies, is the largest provider of management System Certification in the world. IQNet is composed of more than 30 bodies and counts over 150 subsidiaries all over the globe.

ICIM
www.icim.it

CERTIFICATO n. 0192/5
CERTIFICATE No.

SI CERTIFICA CHE IL SISTEMA DI GESTIONE PER LA QUALITA' DI
WE HEREBY CERTIFY THAT THE QUALITY MANAGEMENT SYSTEM OPERATED BY

BCS S.p.A.

UNITA' OPERATIVE
OPERATIVE UNITS

Sede e Unità Operativa
Viale Mazzini, 161 - 20081 Abbiategrasso (MI)
Unità Operative
Via Valbrina, 17/19 - 42045 Luzzara (RE)
Viale Europa, 59 - 20090 Cusago (MI)
Italia

E' CONFORME ALLA NORMA
IS IN COMPLIANCE WITH THE STANDARD

UNI EN ISO 9001:2008

PER LE SEGUENTI ATTIVITA'
FOR THE FOLLOWING ACTIVITIES

EA: 18

Progettazione, produzione ed assistenza di trattori, macchine per agricoltura e manutenzione del verde, motosaldatrici e gruppi elettrogeni.

Design, production and servicing of tractors, agricultural and green maintenance machines, engine driven welders and generating sets.

Riferirsi al Manuale della Qualità per l'applicabilità dei requisiti della norma di riferimento.
Refer to Quality Manual for details of application to reference standard requirements.
Il presente certificato è soggetto al rispetto del regolamento per la certificazione dei sistemi di gestione per la qualità delle aziende.
The use and the validity of this certificate shall satisfy the requirements of the rules for the certification of company quality management systems.

Data emissione *First issue*	Emissione corrente *Current issue*	Data di scadenza *Expiring date*
30/05/1994	19/10/2010	05/03/2012

ICIM S.p.A.
Piazza Don Enrico Mapelli, 75 - 20099 Sesto San Giovanni (MI)

Il presente documento annulla e sostituisce il certificato di pari numero emesso in data 06/03/2009

CISQ è la Federazione Italiana di Organismi di Certificazione dei sistemi di gestione aziendale
CISQ is the Italian Federation of management system Certification Bodies

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO
Membro degli accordi di Mutuo Riconoscimento EA e IAF
Signatory of EA and IAF Mutual Recognition Agreement

FEDERAZIONE CISQ
www.cisq.com

ICIM CISQ IQNet
ISO 9001:2008 - Cert. 0192

UNI EN ISO 9001 : 2008

MOSA has certified its quality system according to UNI EN ISO 9001:2008 to ensure a constant, highquality of its products. This certification covers thedesign, production and servicing of engine drivenwelders and generating sets.

The certifying institute, ICIM, which is a member ofthe International Certification Network IQNet, awarded the official approval to MOSA after an examination of its operations at the head office andplant in Cusago (MI), Italy.

This certification is not a point of arrival but a pledgeon the part of the entire company to maintain a levelof quality of both its products and services whichwill continue to satisfy the needs of its clients, aswell as to improve the transparency and thecommunications regarding all the company's activesin accordance with the official procedures and inharmony with the MOSA Manual of Quality.

The advantages for MOSA clients are:

·Constant quality of products and services at thehigh level which the client expects;

· Continuous efforts to improve the products andtheir performance at competitive conditions;

· Competent support in the solution of problems;

· Information and training in the correct applicationand use of the products to assure the security ofthe operator and protect the environment;

· Regular inspections by ICIM to confirm that therequirements of the company's quality systemand ISO 9001 are being respected.

All these advantages are guaranteed by the CERTIFICATE OF QUALITY SYSTEM No.0192 issued by ICIM S.p.A. - Milano (Italy) - www.icim.it

M 01 QUALITY SYSTEM
M 1.01 COPYRIGHT
M 1.1 NOTES
M 1.4 CE MARK
M 1.5 TECHNICAL DATA
M 1.6 TECHNICAL DATA ENGINE DRIVEN WELDER
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M 61... ELECTRICAL SYSTEM

R 1 SPARE PARTS LIST
..... SPARE PARTS

K... ACCESSORIES

⚠ ATTENTION

This use and maintenance manual is an important part of the machines in question.
The assistance and maintenance personel must keep said manual at disposal, as well as that for the engine and alternator (if the machine is synchronous) and all other documentation about the machine.

We advise you to pay attention to the pages concerning the security (see page M1.1).

MOSA

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INFORMATION

Dear Customer,
We wish to thank you for having bought from MOSA a high quality set.

Our sections for Technical Service and Spare Parts will work at best to help you if it were necessary.

To this purpose we advise you, for all control and overhaul operations, to turn to the nearest authorized Service Centre, where you will obtain a prompt and specialized intervention.

☞ In case you do not profit on these Services and some parts are replaced, please ask and be sure that are used exclusively original MOSA parts; this to guarantee that the performances and the initial safety prescribed by the norms in force are re-established.

☞ *The use of **non original spare parts will cancel immediately** any guarantee and Technical Service obligation from MOSA.*

NOTES ABOUT THE MANUAL

Before actioning the machine please read this manual attentively. Follow the instructions contained in it, in this way you will avoid inconveniences due to negligence, mistakes or incorrect maintenance. The manual is for qualified personnel, who knows the rules: about safety and health, installation and use of sets movable as well as fixed.

You must remember that, in case you have difficulties for use or installation or others, our Technical Service is always at your disposal for explanations or interventions.

The manual for Use Maintenance and Spare Parts is an integrant part of the product. It must be kept with care during all the life of the product.
In case the machine and/or the set should be yielded to another user, this manual must also given to him.
Do not damage it, do not take parts away, do not tear pages and keep it in places protected from dampness and heat.

You must take into account that some figures contained in it want only to identify the described parts and therefore might not correspond to the machine in your possession.

INFORMATION OF GENERAL TYPE

In the envelope given together with the machine and/or set you will find: the manual for Use Maintenance and Spare Parts, the manual for use of the engine and the tools (if included in the equipment), the guarantee (in the countries where it is prescribed by law).

Our products have been designed for the use of generation for welding, electric and hydraulic system; ANY OTHER DIFFERENT USE NOT INCLUDED IN THE ONE INDICATED, relieves MOSA from the risks which could happen or, anyway, from that which was agreed when selling the machine; MOSA excludes any responsibility for damages to the machine, to the things or to persons in this case.

Our products are made in conformity with the safety norms in force, for which it is advisable to use all these devices or information so that the use does not bring damage to persons or things.

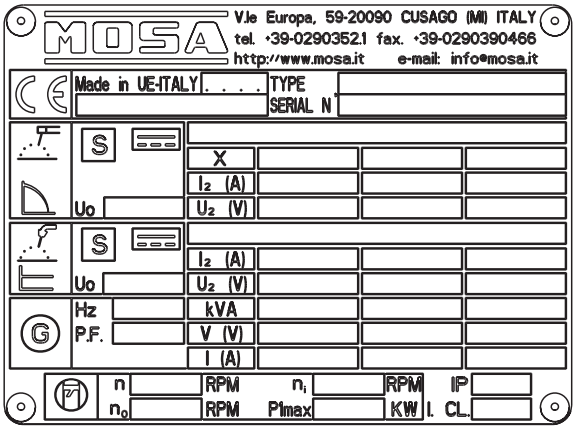
While working it is advisable to keep to the personal safety norms in force in the countries to which the product is destined (clothing, work tools, etc.).

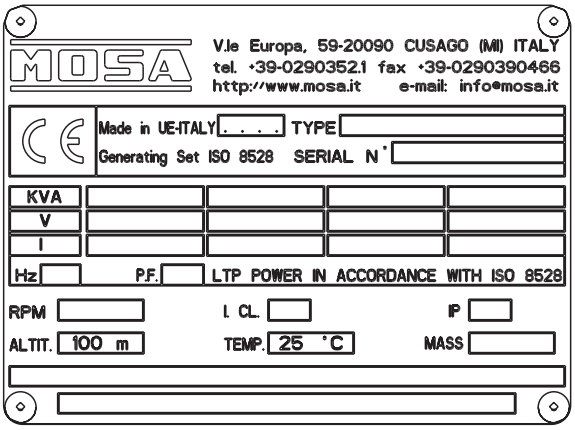
Do not modify for any motive parts of the machine (fastenings, holes, electric or mechanical devices, others..) if not duly authorized in writing by MOSA: the responsibility coming from any potential intervention will fall on the executioner as in fact he becomes maker of the machine.

☞ ***Notice:** this manual does not engage MOSA, who keeps the faculty, apart the essential characteristics of the model here described and illustrated, to bring betterments and modifications to parts and accessories, without putting this manual uptodate immediately.*

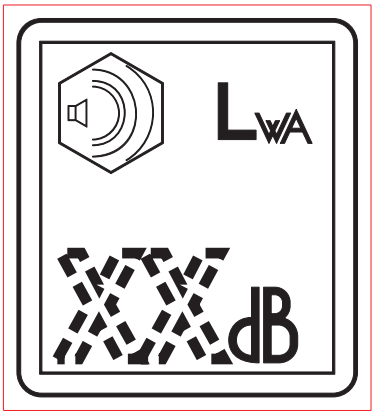
Any of our product is labelled with CE marking attesting its conformity to appliable directives and also the fulfillment of safety requirements of the product itself; the list of these directives is part of the declaration of conformity included in any machine standard equipment.
Here below the adopted symbol:

CE marking is clearly readable and unerasable and it can be either part of the data-plate.





Furthermore, on each model it is shown the noise level value; the symbol used is the following:



The indication is shown in a clear, readable and indeleble way on a sticker.

BCS S.p.A.
Sede legale:
Via Marradi 1
20123 Milano - Italia

Stabilimento di Cusago, 20090 (MI) - Italia
V.le Europa 59
Tel.: +39 02 903521
Fax: +39 02 90390466

ISO 9001:2000 - Cert. 0192

DICHIARAZIONE DI CONFORMITA'

CE

Déclaration de Conformité – Declaration of Conformity – Konformitätserklärung
Conformiteitsverklaring – Declaración de Conformidad

BCS S.p.A. dichiara sotto la propria responsabilità che la macchina:
BCS S.p.A. déclare, sous sa propre responsabilité, que la machine:
BCS S.p.A. declares, under its own responsibility, that the machine:
BCS S.p.A. erklärt, daß die Aggregate:
BCS S.p.A. verklaard, onder haar eigen verantwoordelijkheid, dat de machine:
BCS S.p.A. declara bajo su responsabilidad que la máquina:

GRUPPO ELETTROGENO DI SALDATURA / WELDING GENERATOR ☐

GRUPPO ELETTROGENO / POWER GENERATOR ☐

Marchio / Brand : _MOSA_____

Modello / Model : _____

Matricola / Serial number : _____

FAC SIMILE

è conforme con quanto previsto dalle Direttive Comunitarie e relative modifiche:
est en conformité avec ce qui est prévu par les Directives Communautaires et relatives modifications:
conforms with the Community Directives and related modifications:
mit den Vorschriften der Gemeinschaft und deren Ergänzungen übereinstimmt:
in overeenkomst is met de inhoud van gemeenschapsrichtlijnemen gerelateerde modificaties:
comple con los requisítos de la Directiva Comunitaria y sus anexos:

2006/42/CE - 2006/95/CE - 2004/108/CE

Nome e indirizzo della persona autorizzata a costituire il fascicolo tecnico :
Nom et adresse de la personne autorisée à composer le Dossier Technique :
Person authorized to compile the technical file and address :
Name und Adresse der zur Ausfüllung der technischen Akten ermächtigten Person :
Persoon bevoegd om het technische document , en bedrijf gegevens in te vullen
Nombre y dirección de la persona autorizada a componer el expediente técnico :

ing. Benso Marelli - Amministratore Delegato / CEO; V.le Europa 59, 20090 Cusago (MI) - Italy

Cusago,

Ing. Benso Marelli
Amministratore Delegato
CEO

Technical data	GE 7000 BS/GS	GE 7500 BS/GS
GENERATOR		
*Three-phase generation Stand-by	–	7.5 kVA (6 kW) / 400 V / 10.8 A
**Three-phase generation PRP	–	6.5 kVA (5.2 kW) / 400 V / 9.4 A
*Single-phase generation Stand-by	6.7 kVA (6 kW) / 230 V / 29.1 A	4 kVA / 230 V / 17,4 A
**Single-phase generation PRP	5.5 kVA (5 kW) / 230 V / 23.9 A	-
*Single-phase generation Stand-by	6.7 kVA (6 kW) / 115 V / 58.2 A	-
**Single-phase generation PRP	5.5 kVA (5 kW) / 115 V / 47.8 A	-
Power factor (Cos φ)	0.9	0.8
Frequency	50 Hz	50 Hz
ALTERNATOR	Self-excited, self-regulated, brushless	Self-excited, self-regulated
Type	single-phase, synchronous	three-phase, synchronous
Insulating class	H	H
ENGINE		
Mark / Model	Honda GX 390	
Type / Cooling system	Gasoline 4-Stroke / air	
Net power Stand-by	8.2 kW (11.1 HP)	
Net power PRP	6.4 kW (8.7 Hp)	
Speed	3000 rpm	
Cylinders / Displacement	1 / 389 cm^3	
Fuel consumption (75% of PRP)	2.4 l/h	
Engine oil capacity	1.1 l	
GENERAL SPECIFICATIONS		
Tank capacity	6.5 l	
Running time (75% of PRP)	3 h	
Grade of protection IP	IP 23	
*Dimensions / max. Lxwxh (mm)	910x525x613	
Weight	81 kg	91 kg
Measured acoustic power LwA (LpA pression)	97 dB(A) (72 dB(A) @ 7 m)	
Guaranteed acoustic power LwA (LpA pression)	97 dB(A) (72 dB(A) @ 7 m)	

* Dimensions and weight are inclusive of all parts without wheels and towbar.

OUTPUT

Declared power according to ISO 8528-1 (temperature 25°C, 30% relative humidity, altitude 100 m above sea level).
(*Stand-by) = maximum available power for use at variable loads for a yearly number of hours limited at 500 h. No overload is admitted.
(**Prime power P.R.P.) = maximum available power for use at variable loads for a yearly illimited number of hours. The average power to be taken during a period of 24 h must not be over 80% of the P.R.P.
It's admitted overload of 10% each hour every 12 h.
In an **approximative** way one reduces: of 1% every 100 m altitude and of 2.5% for every 5°C above 25°C.

ACOUSTIC POWER LEVEL

ATTENTION: The concrete risk due to the machine depends on the conditions in which it is used. Therefore, it is up to the end-user and under his direct responsibility to make a correct evaluation of the same risk and to adopt specific precautions (for instance, adopting a I.P.D. -Individual Protection Device)

Acoustic Noise Level (L_{WA}) - Measure Unit dB(A): it stands for acoustic noise released in a certain delay of time. This is not submitted to the distance of measurement.

Acoustic Pressure (Lp) - Measure Unit dB(A): it measures the pressure originated by sound waves emission. Its value changes in proportion to the distance of measurement.

The here below table shows examples of acoustic pressure (Lp) at different distances from a machine with Acoustic Noise Level (L_{WA}) of 95 dB(A)

Lp a 1 meter = 95 dB(A) - 8 dB(A) = 87 dB(A)
Lp a 4 meters = 95 dB(A) - 20 dB(A) = 75 dB(A)
Lp a 7 meters = 95 dB(A) - 25 dB(A) = 70 dB(A)
Lp a 10 meters = 95 dB(A) - 28 dB(A) = 67 dB(A)

PLEASE NOTE: the symbol LWA 2000/14/CE when with acoustic noise values, indicates that the device respects noise emission limits according to 2000/14/CE directive.

Technical data	GE 6000 DS-DES/GS	GE 6500 DS-DES/GS
GENERATOR		
*Stand-by three-phase power	–	6.5 kVA (5.2 kW) / 400 V / 9.4 A
**PRP three-phase power	–	5.7 kVA (4.6 kW) / 400 V / 8.2 A
*Stand-by single-phase power	5.7 kVA (5.1 kW) / 230 V / 24.8 A	4 kVA / 230 V / 17.4 A
**PRP single-phase power	5 kVA (4.5 kW) / 230 V / 21.7	–
*Stand-by single-phase power	5.7 kVA (6 kW) / 115 V / 49.6 A	–
**PRP single-phase power	5 kVA (5 kW) / 115 V / 43.5 A	–
Cos φ	0.9	0.8
Frequency	50 Hz	50 Hz
ALTERNATOR	Self-excited, self-regulated, brushless	Self-excited, self-regulated
Type	single-phase, synchronous	three-phase, synchronous
Insulating class	H	H
ENGINE		
Mark / Model	Yanmar L100N	
Type / Cooling system	Diesel 4-Stroke / air	
Net power Stand-by	6.5 kW (8.8 HP)	
Net power PRP	5.7 kW (7.7 HP)	
Speed	3000 rpm	
Cylinders / Displacement	1 / 435 cm^3	
Fuel consumption (75% of PRP)	1.2 l/h	
Engine oil capacity	1.6 l	
GENERAL SPECIFICATIONS		
Tank capacity	5.5 l	
Running time (75% of PRP)	4.6 h	
Grade of protection IP	IP 23	
*Dimensions Lxwxh (mm)	900x550x620	
Weight DS	99 Kg	105 Kg
Weight DES	105 Kg	108 Kg
Acoustic power LwA (LpA pression)	99 dB(A) (74 dB(A) @ 7 m)	

* Dimensions and weight are inclusive of all parts without wheels and towbar.

OUTPUT

Declared power according to ISO 8528-1 (temperature 25°C, 30% relative humidity, altitude 100 m above sea level).
(*Stand-by) = maximum available power for use at variable loads for a yearly number of hours limited at 500 h. No overload is admitted.
(**Prime power PRP) = maximum available power for use at variable loads for a yearly illimited number of hours. The average power to be taken during a period of 24 h must not be over 80% of the PRP.
It's admitted overload of 10% each hour every 12 h.
In an **approximative** way one reduces: of 1% every 100 m altitude and of 2.5% for every 5°C above 25°C.

ACOUSTIC POWER LEVEL

ATTENTION: The concrete risk due to the machine depends on the conditions in which it is used. Therefore, it is up to the end-user and under his direct responsibility to make a correct evaluation of the same risk and to adopt specific precautions (for instance, adopting a I.P.D. -Individual Protection Device)

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Lp a 7 meters = 95 dB(A) - 25 dB(A) = 70 dB(A)
Lp a 10 meters = 95 dB(A) - 28 dB(A) = 67 dB(A)

PLEASE NOTE: the symbol when with acoustic noise values, indicates that the device respects noise emission limits according to 2000/14/CE directive.

15/01/04 25670-GB

SYMBOLS IN THIS MANUAL

- The symbols used in this manual are designed to call your attention to important aspects of the operation of the machine as well as potential hazards and dangers for persons and things.

IMPORTANT ADVICE

- Advice to the User about the safety:

☞ N.B.: The information contained in the manual can be changed without notice. Potential damages caused in relation to the use of these instructions will not be considered because these are only indicative. Remember that the non observance of the indications reported by us might cause damage to persons or things. It is understood, that local dispositions and/or laws must be respected.

WARNING

Situations of danger - no harm to persons or things

Do not use without protective devices provided
Removing or disabling protective devices on the machine is prohibited.

Do not use the machine if it is not in good technical condition
The machine must be in good working order before being used. Defects, especially those which regard the safety of the machine, must be repaired before using the machine.

SAFETY PRECAUTIONS

DANGEROUS

This heading warns of an immediate danger for persons as well for things. Not following the advice can result in serious injury or death.

WARNING

This heading warns of situations which could result in injury for persons or damage to things.

CAUTION

To this advice can appear a danger for persons as well as for things, for which can appear situations bringing material damage to things.

IMPORTANT

NOTE

ATTENTION

These headings refer to information which will assis you in the correct use of the machine and/or accessories.

SYMBOLS

STOP **-** Read absolutely and be duly attentive

Read and pay due attention

GENERAL ADVICE **-** If the advice is not respected damage can happen to persons or things.

HIGH VOLTAGE **-** Attention High Voltage. There can be parts in voltage, dangerous to touch. The non observance of the advice implies life danger.

FIRE **-** Danger of flame or fire. If the advice is not respected fires can happen.

HEAT **-** Hot surfaces. If the advice is not respected burns or damage to things can be caused.

EXPLOSION **-** Explosive material or danger of explosion. in general. If the advice is not respected there can be explosions.

WATER **-** Danger of shortcircuit. If the advice is not respected fires or damage to persons can be caused.

SMOKING **-** The cigarette can cause fire or explosion. If the advice is not respected fires or explosions can be caused.

ACIDS **-** Danger of corrosion. If the advice is not respected the acids can cause corrosions with damage to persons or things.

WRENCH **-** Use of the tools. If the advice is not respected damage can be caused to things and even to persons.

PRESSION **-** Danger of burns caused by the expulsion of hot liquids under pressure.

ACCES FORBIDDEN *to non authorizad* peaple.

PROHIBITIONS No harm for persons

Use only with safety clothing -

It is compulsory to use the personal protection means given in equipment.

Use only with safety clothing -

It is compulsory to use the personal protection means given in equipment.

Use only with safety protections -

It is a must to use protection means suitable for the different welding works.

Use with only safety material -

It is prohibited to use water to quench fires on the electric machines.

Use only with non inserted voltage -

It is prohibited to make interventions before having disinserted the voltage.

No smoking -

It is prohibited to smoke while filling the tank with fuel.

No welding -

It is forbidden to weld in rooms containing explosive gases.

ADVICE <u>No harm for persons and things</u>

Use only with safety tools, adapted to the specific use -

It is advisable to use tools adapted to the various maintenance works.

Use only with safety protections, specifically suitable

It is advisable to use protections suitable for the different welding works.

Use only with safety protections -

It is advisable to use protections suitable for the different daily checking works.

Use only with safety protections -

It is advisable to use all protections while shifting the machine.

Use only with safety protections -

It is advisable to use protections suitable for the different daily checking works.and/or of maintenance.

The installation and the general advice concerning the operations, are finalized to the correct use of the machine, in the place where it is used as generator group and/or welder.

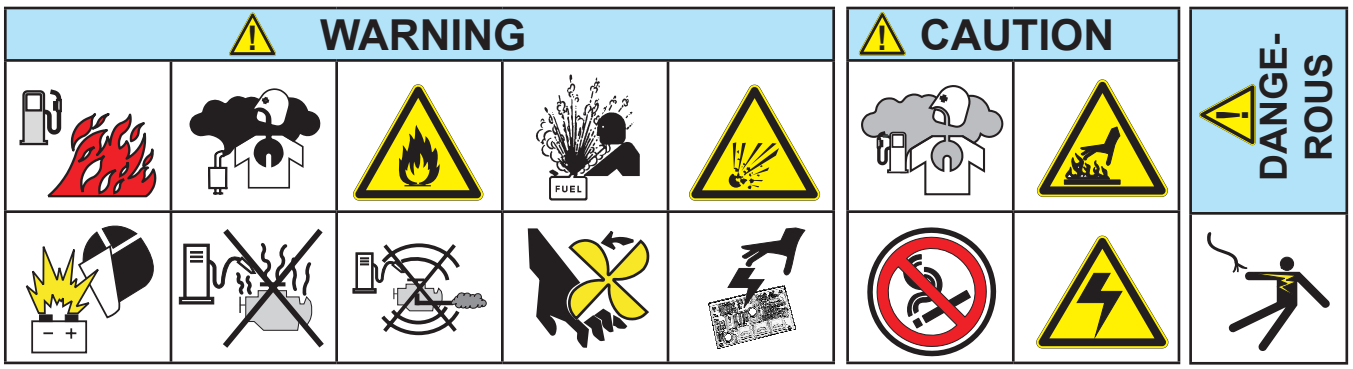
ENGINE	CHECKING BOARD
Stop engine when fueling	Do not touch electric devices if you are barefoot or with wet clothes.
Do not smoke, avoid flames, sparks or electric tools when fueling.	Always keep off leaning surfaces during work operations.
Unscrew the cap slowly to let out the fuel vapours.	Static electricity can demage the parts on the circuit.
Slowly unscrew the cooling liquid tap if the liquid must be topped up.	An electric shock can kill
The vapor and the heated cooling liquid under pressure can burn face, eyes, skin.	
Do not fill tank completely.	
Wipe up spilled fuel before starting engine.	
Shut off fuel of tank when moving machine (where it is assembled).	
Avoid spilling fuel on hot engine.	
Sparks may cause the explosion of battery vapours	

☞ **FIRST AID.** In case the operator shold be sprayed by accident, from corrosive liquids a/o hot toxic gas or whatever event which may cause serious injuries or death, predispose the first aid in accordance with the ruling labour accident standards or of local instructions.

Skin contact	Wash with water and soap
Eyes contact	Irrigate with plenty of water, if the irritation persists contact a specialist
Ingestion	Do not induce vomit as to avoid the intake of vomit into the lungs, send for a doctor
Suction of liquids from lungs	If you suppose that vomit has entered the lungs (as in case of spontaneous vomit) take the subject to the hospital with the utmost urgency
Inhalation	In case of exposure to high concentration of vapours take immediately to a non polluted zone the person involved

☞ **FIRE PREVENTION.** In case the working zone,for whatsoever cause goes on fire with flames liable to cause severe wounds or death, follow the first aid as described by the ruling norms or local ones.

EXTINCTION MEANS	
Appropriated	Carbonate anhydride (or carbon dioxyde) powder, foam, nebulized water
Not to be used	Avoid the use of water jets
Other indications	Cover eventual shedding not on fire with foam or sand, use water jets to cool off the surfaces close to the fire
Particular protection	Wear an autorespiratory mask when heavy smoke is present
Useful warnings	Avoid, by appropriate means to have oil sprays over metallic hot surfaces or over electric contacts (switches,plugs,etc.). In case of oil sprinkling from pressure circuits, keep in mind that the inflamability point is very low.



WARNING — ***THE MACHINE MUST NOT BE USED IN AREAS WITH EXPLOSIVE ATMOSPHERE***

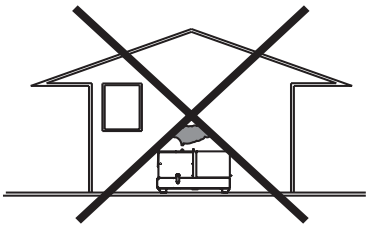
INSTALLATION AND ADVICE BEFORE USE

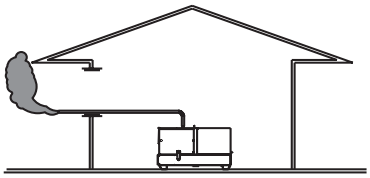
GASOLINE ENGINES

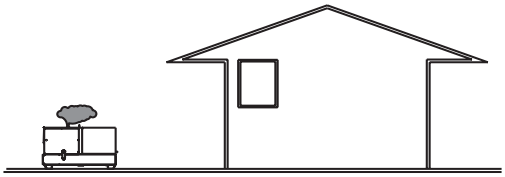
☞ Use in open space, air swept or vent exhaust gases, which contain the deathly carbone oxyde, far from the work area.

DIESEL ENGINES

☞ Use in open space, air swept or vent exhaust gases far from the work area.

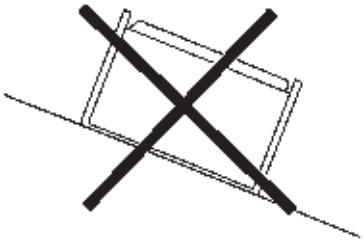




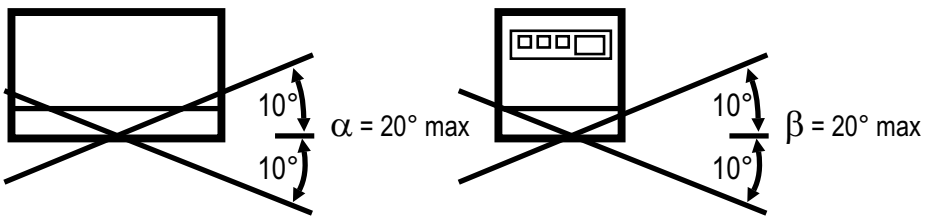


POSITION

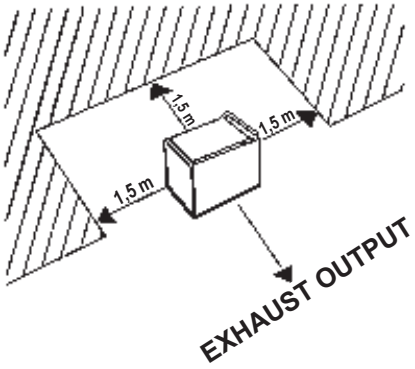
Place the machine on a level surface at a distance of at least 1,5 m from buildings or other plants.



Maximum leaning of the machine (in case of dislevel)



Check that the air gets changed completely and the hot air sent out does not come back inside the set so as to cause a dangerous increase of the temperature.



☞ Make sure that the machine does not move during the work: **block** it possibly with tools and/or devices made to this purpose.

MOVES OF THE MACHINE

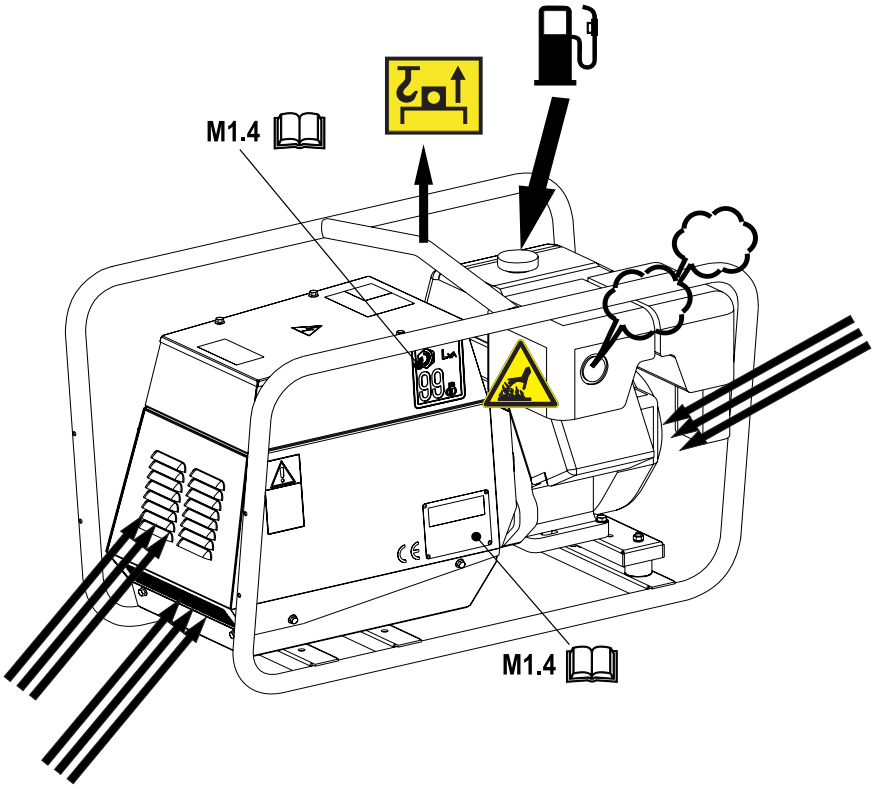
☞ At any move check that the engine is **off**, that there are no connections with cables which impede the moves.

PLACE OF THE MACHINE

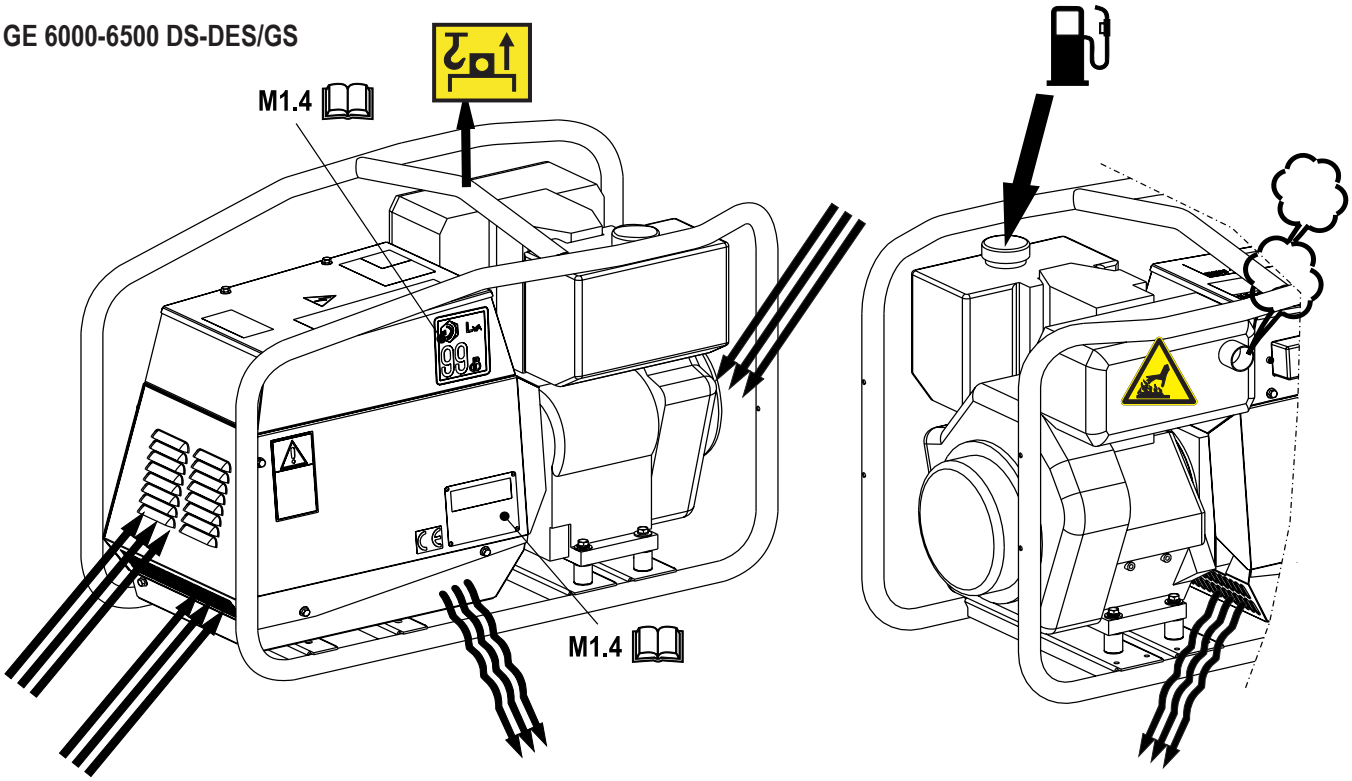
ATTENTION

For a safer use from the operator **DO NOT** fit the machine in locations with high risk of flood.
Please do not use the machine in weather conditions which are beyond IP protection shown both in the data plate and on page named "technical data" in this same manual.

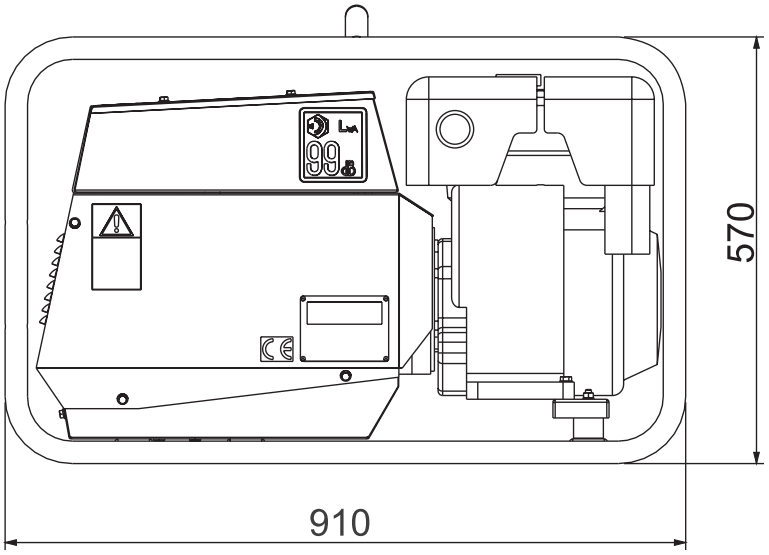
GE 7000-7500 BS/GS

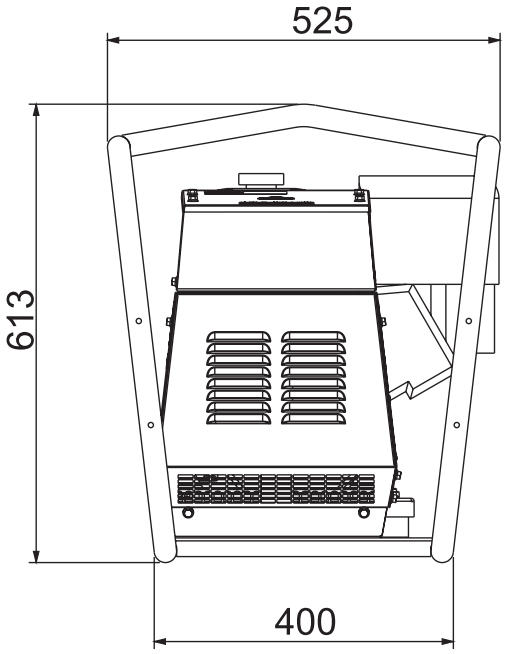


GE 6000-6500 DS-DES/GS

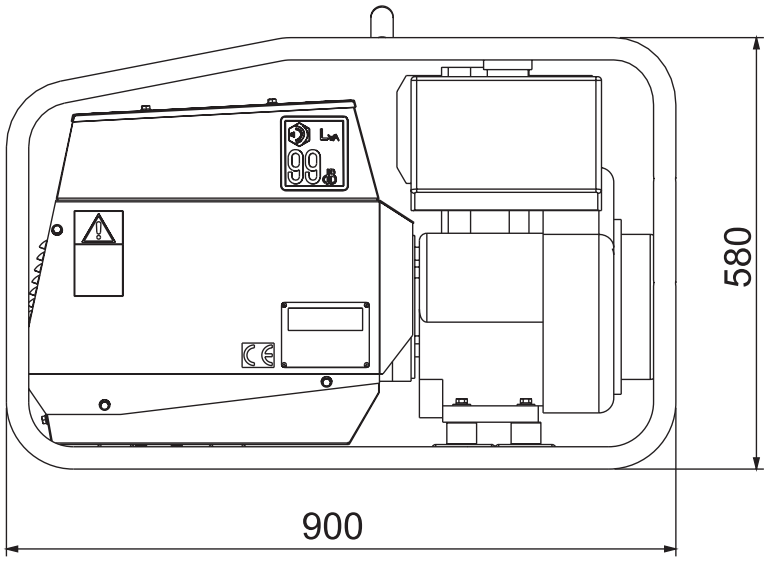


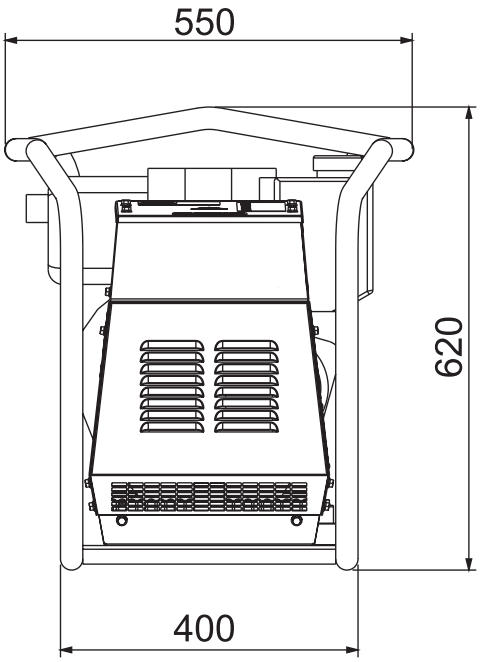
GE 7000 - 7500 BS/GS



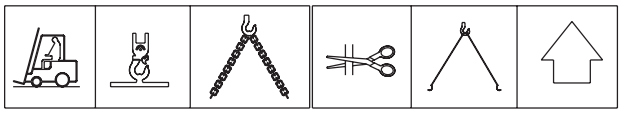


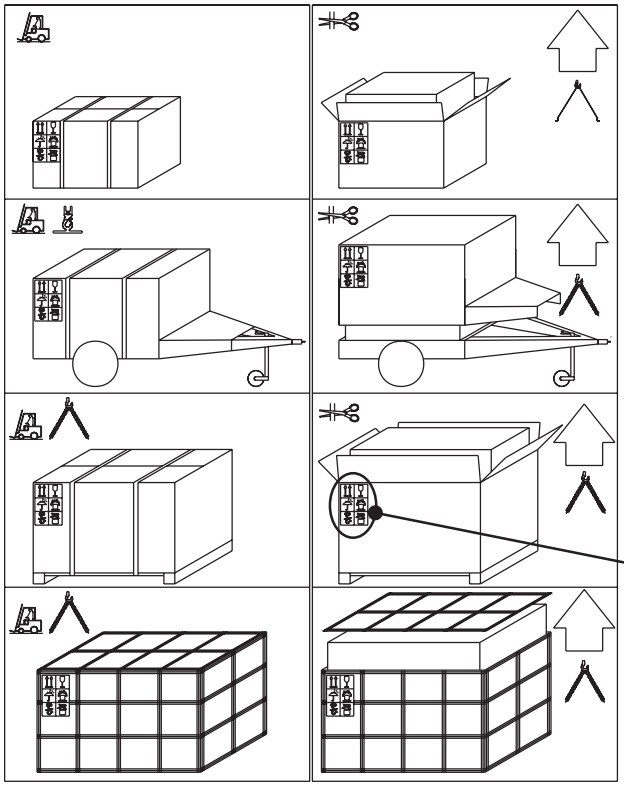
GE 6000 - 6500 DS-DES/GS





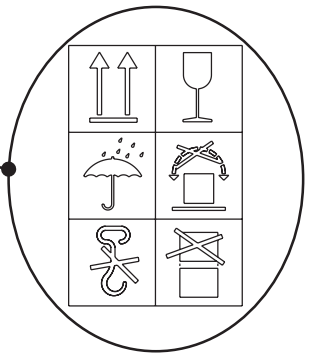
NOTE

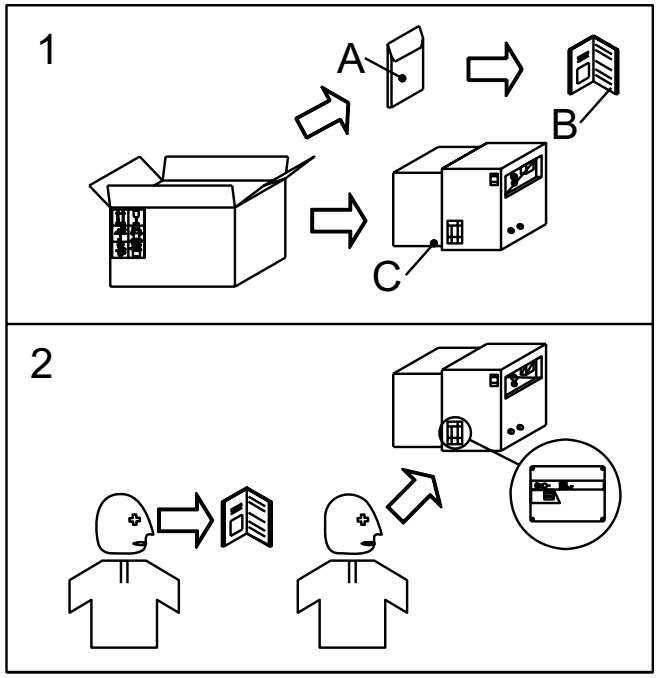




☞ Be sure that the lifting devices are: correctly mounted, adequate for the weight of the machine with it's packaging, and conforms to local rules and regulations.
When receiving the goods make sure that the product has not suffered damage during the transport, that there has not been rough handling or taking away of parts contained inside the packing or in the set.
In case you find damages, rough handling or absence of parts (envelopes, manuals, etc.), we advise you to inform immediately our Technical Service.

For eliminating the packing materials, the User must keep to the norms in force in his country.



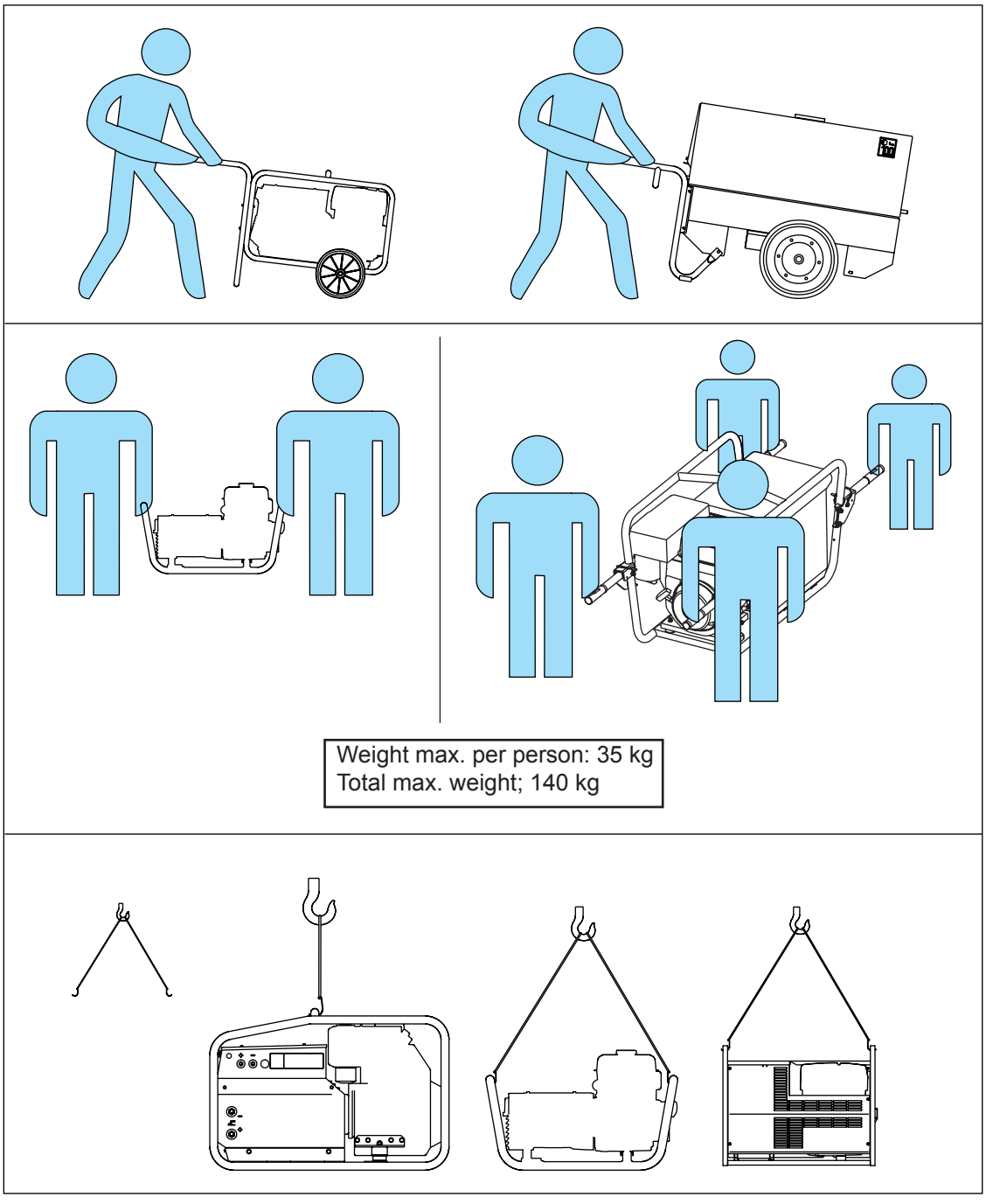


1) Take the machine (C) out of the shipment packing. Take out of the envelope (A) the user's manual (B).
2) Read: the user's manual (B), the plates fixed on the machine, the data plate.

NOTE

Transportation must always take place with the engine off, electrical cables and starting battery disconnected and fuel tank empty.
Be sure that the lifting devices are: correctly mounted, adequate for the weight of the machine with it's packaging, and conform to local rules and regulations.
Only authorized persons involved in the transport of the machine should be in the area of movement.

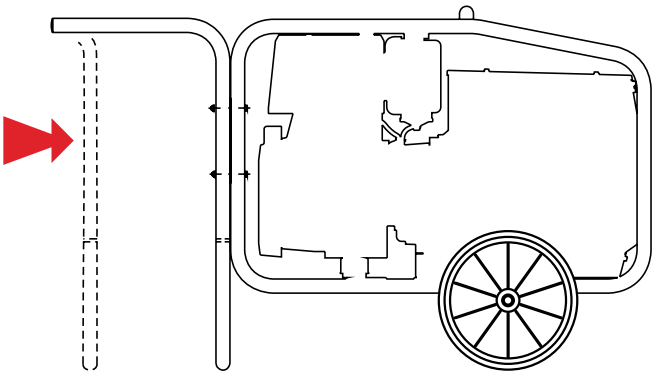
DO NOT LOAD OTHER PARTS WHICH CAN MODIFY WEIGHT AND BARICENTER POSITION.
IT IS STRICTLY FORBIDDEN TO DRAG THE MACHINE MANUALLY OR TOW IT BY ANY VEHICLE (model with no CTM accessory).
If you did not keep to the instructions, you could damage the structure of the machine.

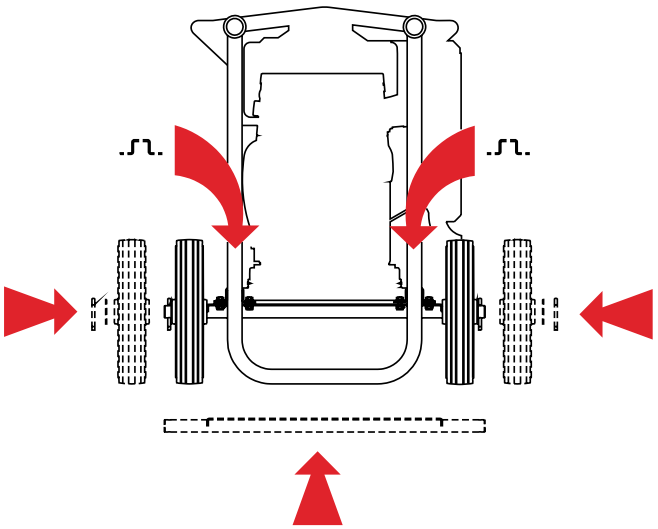


⚠ ATTENTION

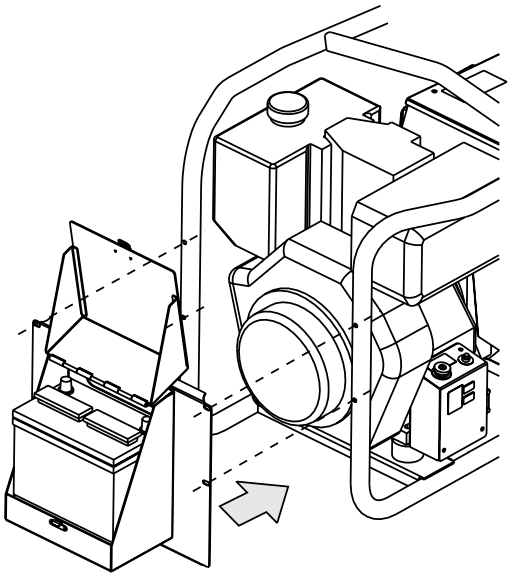
The CTM accessory cannot be removed from the machine and used separately (actioned manually or following vehicles) for the transport of loads or anyway for used different from the machine movements.

***Note*:** Lift the machine and assemble the parts as shown in the drawing





PB3



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BATTERY WITHOUT MAINTENANCE

Connect the cable + (positive) to the pole + (positive) of the battery (after having taken away the protection), by properly tightening the clamp.

Check the state of the battery from the colour of the warning light which is in the upper part.

- Green colour: battery OK
- Black colour: battery to be recharged
- White colour: battery to be replaced

DO NOT OPEN THE BATTERY.

LUBRICANT

RECOMMENDED OIL

MOSA recommends selecting **AGIP** engine oil. Refer to the label on the motor for the recommended products.

PRODOTTI RACCOMANDATI RECOMMENDED PRODUCTS	
AGIP SIGMA TURBO PLUS 15W/40 API CG4 - ACEA E3	OLIO MOTORE DIESEL DIESEL ENGINE OIL
AGIP SUPERMOTOROIL 20W/50 API CC-SF	OLIO MOTORE BENZINA GASOLINE ENGINE OIL
AGIP ANTIFREEZE EXTRA INIBITE ETHYLENE GLYCOL (50% + 50% + H_2O)	CIRCUITO DI RAFFREDDAMENTO COOLING CIRCUIT (CUNA NC 956-16 ED 97)

Please refer to the motor operating manual for the recommended viscosity.

REFUELLING AND CONTROL:

Carry out refuelling and controls with motor at level position.

1. Remove the oil-fill tap (24)
2. Pour oil and replace the tap
3. Check the oil level using the dipstick (23); the oil level must be comprised between the minimum and maximum indicators.

ATTENTION

It is dangerous to fill the motor with too much oil, as its combustion can provoke a sudden increase in rotation speed.

DRY AIR FILTER

Check that the dry air filter is correctly installed and that there are no leaks around the filter which could lead to infiltrations of non-filtered air to the inside of the motor.

OIL BATH AIR FILTER

Fill the air filter using the same engine oil up to the level indicated on the filter.

FUEL

ATTENTION

Do not smoke or use open flames during refuelling operations, in order to avoid explosions or fire hazards.
Fuel fumes are highly toxic; carry out operations outdoors only, or in a well-ventilated environment.

Avoid accidentally spilling fuel. Clean any eventual leaks before starting up motor.

Refill the tank with good quality diesel fuel, such as automobile type diesel fuel, for example.

For further details on the type of diesel fuel to use, see the motor operating manual supplied.

Do not fill the tank completely; leave a space of approx. 10 mm between the fuel level and the wall of the tank to allow for expansion.

In rigid environmental temperature conditions, use special winterized diesel fuels or specific additives in order to avoid the formation of paraffin.

GROUNDING CONNECTION

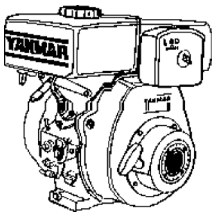
The grounding connection to an earthed installation **is obligatory** for all models equipped with a differential switch (circuit breaker). In these groups the generator star point is generally connected to the machine's earthing; by employing the TN or TT distribution system, the differential switch guarantees protection against indirect contacts.
In the case of powering complex installations requiring or employing additional electrical protection devices, the coordination between the protection devices must be verified.
For the grounding connection, use the terminal (12); comply to local and/or current regulations in force for electrical installations and safety.

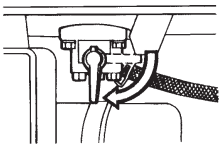
check daily

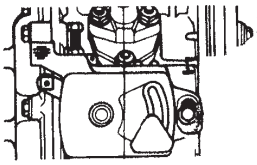
NOTE

Do not alter the primary conditions of regulation and do not touch the sealed parts.

MANUAL RECOIL VERSION

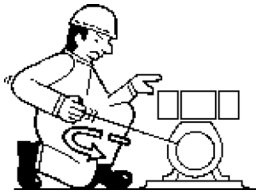


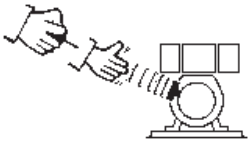

1) Open the fuel coc

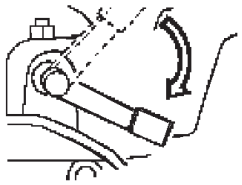

2) Accelerator lever must be in the "START" position

3) hold the starting handle properly

4) pull the starting handle slowly...


5) ... until you feel resistance


6) then return it slowly

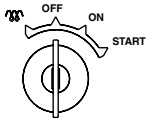

7) push the decompression lever down and release

8) hold the starting handle firmly

9) pull the rope hard and fast. Pull it all the way out. Use two hands if necessary.

ELECTRIC STARTING VERSION

Effect the operations 1), 2) and 7) as reported in the para **Recoil starter.**



Turn the starting key (Q1) completely clockwise, until the motor starts.

Let the engine run for some minutes before drawing the load.

☞***In case of unsuccessful start-up, do not insist for longer than 5 seconds. Wait 10 seconds before attempting another start-up .***

Emergency recoil start

Turn the starting key (Q1) in “ON” position and repeat the process of recoil starting.

ATTENTION

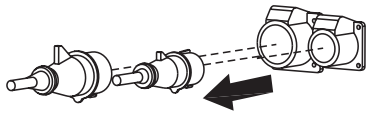
If battery is not connected, disconnect voltage regulator to prevent damage.

CAUTION

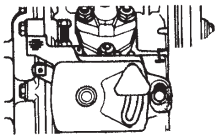
RUNNING IN
During the first 50 hours do not use the unit at more than 60% of full load. Check the oil level regularly.

☞ Before stopping the engine **it is compulsory** :

- shut off any loads which are connected to the unit auxiliary outputs;

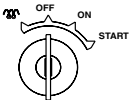


To stop the engine

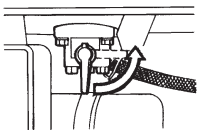


Move the engine speed lever to the "STOP" position.

Electric starting version



Remove the key (Q1) turning it counter clockwise, OFF position, then take it out.



Shut the fuel cock.

☞ ***NB.: for safety reason the key must be kept by qualified personel.***

BATTERY WITHOUT MAINTENANCE

Connect the cable + (positive) to the pole + (positive) of the battery (after having taken away the protection), by properly tightening the clamp.
Check the state of the battery from the colour of the warning light which is in the upper part.

- Green colour: battery OK
- Black colour: battery to be recharged
- White colour: battery to be replaced

DO NOT OPEN THE BATTERY.

LUBRICANT

Check the level of the engine oil using the (appropriate oil dipstick: the level should be between the minimum and maximum marks.

If necessary, add more oil through the appropriate inlet

OIL RECOMMENDED
MOSA advises to choose **AGIP** for the type of oil.

Please keep to the label put on the engine for the recommended products.

☞ ***NOTE**: before starting and switching off, see instructions in the engine owner's manual herewith attached.*

FUEL

Check the level of fuel in the tank and, if necessary, add unleaded gasoline.
For further information regarding the fuel which has to be used, see instructions in the engine owner's manual herewith attached.

If during the filling of the tank some gasoline is accidentally spilled around the engine chassis, clean it immediately before starting up the engine.

ENGINE WITH OIL ALERT DEVICE

The OIL ALERT device will stop the engine in case of no oil or insufficient amount of oil in the engine.

In case one tries to start the engine with oil below the minimum level, the warning light (when assembled) will light and the device will not allow starting.

CLEANING OF DRY AIR FILTER

Check that the dry air filter is correctly installed and that there are no leaks around the filter which could lead to infiltrations of non-filtered air to the inside of the motor.

GROUND CONNECTION

☞ It is **obligatory** to connect the ground connection point (12) by means of a sure efficient cable (please follow the installation local rules and/or regulations in force) in order to integrate or ensure the working of various electric protection devices referring to the several distribution systems TN.

The unit can be started only when the above operations have been correctly performed.

Check daily

NOTE

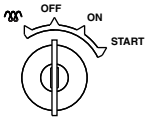
Do not alter the primary conditions of regulation and do not touch the sealed parts.

ENGINES WITH ELECTRIC START

IInsert the electric protection device (D-Z2-N2) lever towards above and, where mounted, check the isolation monitor (A3) see page M37 -

Check the battery connection with the respective terminals (+) (-).

Open the gosoline cock; use the starter if the engíne is cold and the temperature is low.



Introduce the key (Q1), turn it clockwise completely, leaving it as soon as the engine starts and/or the push button (32) (models without key) leaving it as soon as the engine starts.

☞ **NB.: for safety reason the key must be kept by qualified personel.**

Once the engine is started, with the starter off, let it turn for a few minutes before drawing the load.

Accelerate the machine by means of the right lever (16), when it is assembled.

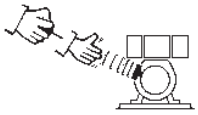
ENGINE WITH NO ELECTRIC START

Insert the electric protection device (D-Z2-N2) lever towards above and, where mounted, check the isolation monitor (A3) see page M37-

Open the gasoline cock; use the starter if the engine is cold and the temperature is low.

Hold the starting handle firmly.

Pull the rope hard and fast. Pull it all the way out. Use two hands if necessary.



Then returning it slowly.

Once the engine is started, with the starter off, let it turn for a few minutes before drawing the load.

Accelerate the machine by means of the right lever (16), when it is assembled.

EMERGENCY START
(wlth rope)

In the versions with electric start, in case of need, it is possible to start the engine with the rope.

CAUTION

If the engine fails to start, do not insist for at least 15 seconds.

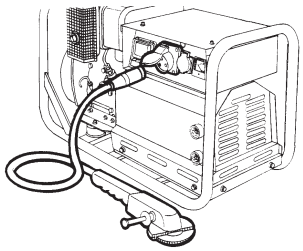
Space the further operations waiting for at least 4 minutes.

CAUTION

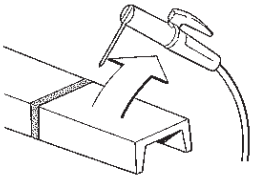
RUNNING-IN
During the first 50 hours of operation, do not use more than 60% of the maximum output power of the unit and check the oil level frequently., *in any case please stick to the rules given in the engine use manual.*

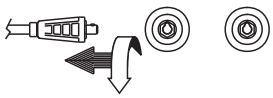
☞ Before stopping the engine **it is compulsory** to effect the following operations:

- stop to draw three/single-phase current from the auxiliary sockets.



- stop to draw power from the welding sockets (only for TS models).



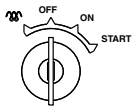


ENGINES WITH ELECTRIC START

☞ Make sure that the machine is not under load.

Wait for a few minutes to allow the engine to cool down, anyway follow the instructions contained in the engine manual.

Shut the gasoline cock.



Take out the key (Q1), turning it counter clockwise (when assembled) or pressing the stop button (32) until the engine stops.

☞ **NB.: for safety reason the key must be kept by qualified personel.**

ENGINES WITHOUT ELECTRIC START

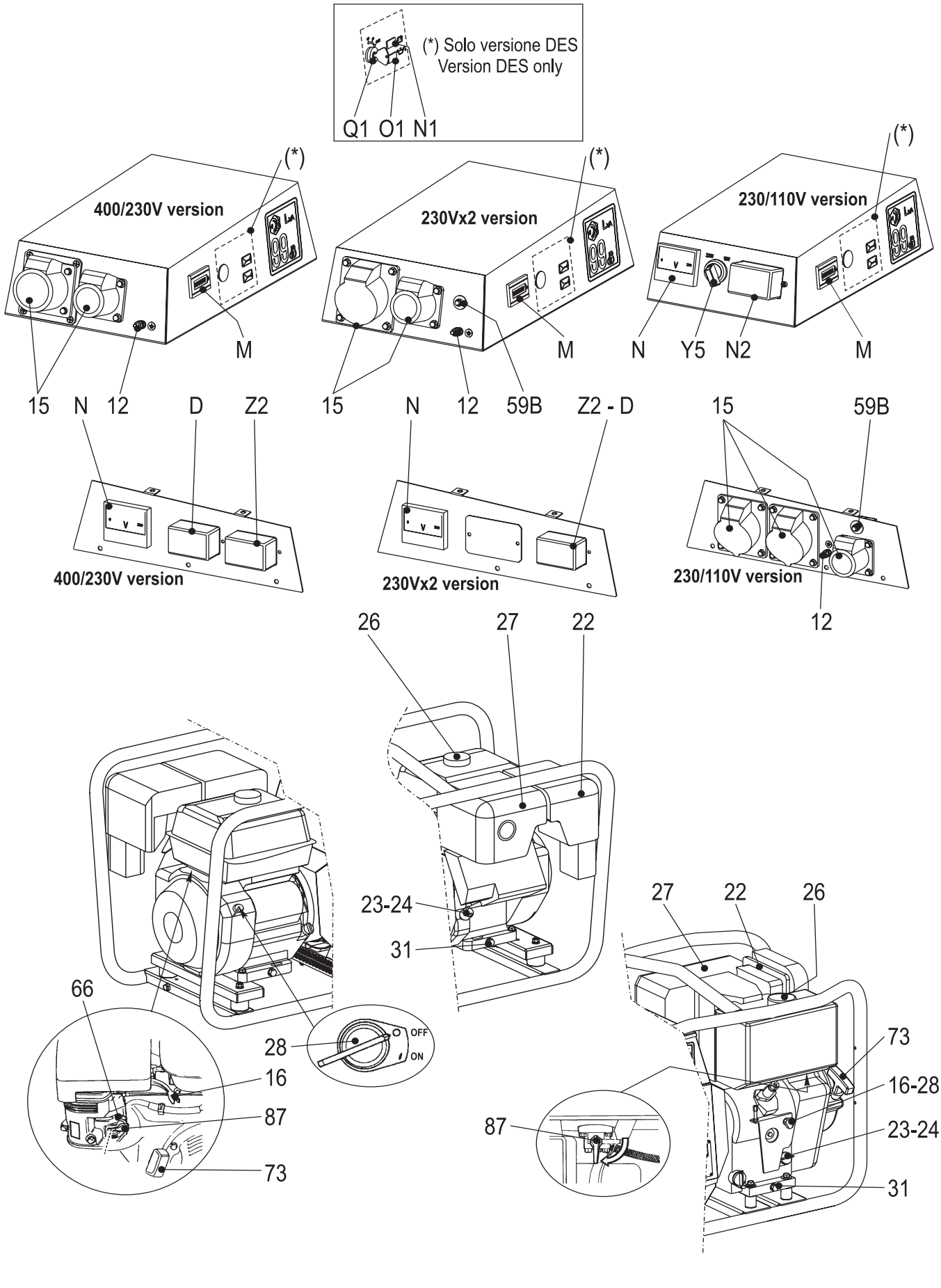
☞ Make sure that the machine is not under load.

Wait for a few mìnutes to allow the engine to cool down, take however into consideration the prescriptions given in the engine use manual.

Shut the gasoline cock.

Set the engine switch (32) to the OFF position.

4A	Hydraulic oil level light
9	Welding socket (+)
10	Welding socket (-)
12	Earth terminal
15	A.C. socket
16	Accelerator lever
17	Feed pump
19	48V D.C. socket
22	Engine air filter
23	Oil level dipstick
24	Engine oil reservoir cap
24A	Hydraulic oil reservoir cap
24B	Water filling cap
25	Fuel prefilter
26	Fuel tank cap
27	Muffler
28	Stop control
29	Engine protection cover
30	Engine cooling/alternator fan belt
31	Oil drain tap
31A	Hydraulic oil drain tap
31B	Water drain tap
31C	Exhaust tap for tank fuel
32	Button
33	Start button
34	Booster socket 12V
34A	Booster socket 24V
35	Battery charge fuse
36	Space for remote control
37	Remote control
42	Space for E.A.S.
42A	Space for PAC
47	Fuel pump
49	Electric start socket
54	Reset button PTO HI
55	Quick coupling m. PTO HI
55A	Quick coupling f. PTO HI
56	Hydraulic oil filter
59	Battery charger thermal switch
59A	Engine thermal switch
59B	Aux current thermal switch
59C	Supply thermal switch wire feeder-42V
59D	Pre-heater (spark plug) thermal switch
59E	Supply thermal switch oil/water heather
59F	Electropump thermal switch
63	No load voltage control
66	Choke control
67A	Auxiliary / welding current control
68	Cellulosic electrodes control
69A	Voltmeter relay
70	Warning lights
71	Selecting knob
72	Load commut. push button
73	Starting push button
74	Operating mode selector
75	Power on warning light
76	Display
79	Wire connection unit
86	Selector
86A	Setting confirmation
87	Fuel valve
88	Oil syringe
A3	Insulation monitoring
A4	Button indicating light 30 l/1' PTO HI
B2	Engine control unit EP2
B3	E.A.S. connector
B4	Exclusion indicating light PTO HI
B5	Auxiliary current push button
C2	Fuel level light
C3	E.A.S. PCB
C6	Control unit for generating sets QEA
D	Ground fault interrupter (30 mA)
D1	Engine control unit and economiser EP1
D2	Ammeter
E2	Frequency meter
F	Fuse
F3	Stop switch
F5	Warning light, high temperature
F6	Arc-Force selector
G1	Fuel level transmitter
H2	Voltage commutator
H6	Fuel electro pump
H8	Engine control unit EP7
I2	48V A.C. socket
I3	Welding scale switch
I4	Preheating indicator
I5	Y/▲ switch
I6	Start Local/Remote selector
I8	AUTOIDLE switch
L	A.C. output indicator
L5	Emergency button
L6	Choke button
M	Hour counter
M1	Warning level light
M2	Contactor
M5	Engine control unit EP5
M6	CC/CV switch
N	Voltmeter
N1	Battery charge warning light
N2	Thermal-magnetic circuit breaker/ Ground fault interrupter
N5	Pre-heat push-button
N6	Connector - wire feader
O1	Oil pressure warning light/Oil alert
P	Welding arc regulator
Q1	Starter key
Q3	Derivation box
Q4	Battery charge sockets
Q7	Welding selector mode
R3	Siren
S	Welding ammeter
S1	Battery
S3	Engine control unit EP4
S6	Wire feeder supply switch
S7	Plug 230V singlephase
T	Welding current regulator
T4	Dirty air filter warning light/indicator
T5	Earth leakage relay
T7	Analogic instrument V/Hz
U	Current trasformer
U3	R.P.M. adjuster
U4	Polarity inverter remote control
U5	Relase coil
U7	Engine control unit EP6
V	Welding voltage voltmeter
V4	Polarity inverter control
V5	Oil pressure indicator
W1	Remote control switch
W3	Selection push button 30 l/1' PTO HI
W5	Battery voltmeter
X1	Remote control socket
Y3	Button indicating light 20 l/1' PTO HI
Y5	Commutator/switch, serial/parallel
Z2	Thermal-magnetic circuit breaker
Z3	Selection push button 20 l/1' PTO HI
Z5	Water temperature indicator



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WARNING

It is absolutely forbidden to connect the unit to the public mains and/or another electrical power source .

Access <u>forbidden</u> to area adjacent to electricity-generating group for all non-authorized personnel.

WARNING

For the canopy generator sets provided with doors, the following instruction shall be observed. During the normal operation, the doors of the engine compartment and/or the electrical box shall be kept closed, locked up if possible, as they must be considered in all respects as protection barriers. The access to the internal parts shall occur for maintenance purposes only, by qualified personnel and, in any case, when the engine is stopped.

The electricity-generating groups are to be considered electrical energy producing stations.
The dangers of electrical energy must be considered together with those related to the presence of chemical substances (fuels, oils, etc.), rotating parts and waste products (fumes, discharge gases, heat, etc.).

GENERATION IN AC (ALTERNATING CURRENT)

Before each work session check the efficiency of the ground connection for the electricity-generating group if the distribution system adopted requires it, such as, for example, the TT and TN systems.

Check that the electrical specifications for the units to be powered - voltage, power, frequency - are compatible with those of the generator. Values that are too high or too low for voltage and frequency can damage electrical equipment irreparably.
In some cases, for the powering of three-phase loads, it is necessary to ensure that the cyclic direction of the phases corresponds to the installation's requirements.

Connect the electric devices to be powered to the AC sockets, using suitable plugs and cables in prime condition.

Before starting up the group, make certain no dangerous situations exist on the installation to be powered.
Check that the thermal-magnetic switch (Z2) is in the OFF position (input lever in downward position).

Start up the electricity-generating group, positioning the thermal-magnetic switch (Z2) and differential switch (D) to ON (input lever in upward position).
Before powering on the utilities, check that the voltmeter (N) and frequency meter (E2) indicate nominal values; in addition, check on the voltmeter change-over switch (H2) (where it is assembled) that the three line voltages are the same.
☞ In the absence of a load, the values for voltage and frequency can be greater than their nominal values. See sections on VOLTAGE and FREQUENCY.

OPERATING CONDITIONS

<u>POWER</u>

The electrical power expressed in kVA on an electricity-generating group is the available output power to the reference environmental conditions and nominal values for: voltage, frequency, power factors (cos φ).
There are various types of power: PRIME POWER (PRP), STAND-BY POWER established by ISO 8528-1 and 3046/1 Norms, and their definitions are listed in the manual's TECHNICAL SPECIFICATIONS page.

☞ During the use of the electricity-generating group **NEVER EXCEED** the power indications, paying careful attention when several loads are powered simultaneously.

<u>VOLTAGE</u>

GENERATORS WITH COMPOUND SETTING (THREEPHASE)
GENERATORS WITH CONDENSER SETTING (SINGLEPHASE)
In these types of generators, the no-load voltage is generally greater than 3–5% with respect to its nominal value; f.e. for nominal voltage, threephase 400Vac or singlephase 230Vac, the no-load voltage can be comprised between 410-420V (threephase) and 235-245V (singlephase). The precision of the load voltage is maintained within ±5% with balanced loads and with a rotation speed variation of 4%. Particularly, with resistive loads (cos φ = 1), a voltage over-elevation occurs which, with the machine cold and at full load, can even attain +10 %, a value which in any case is halved after the first 10-15 minutes of operation.
The insertion and release of the full load, under constant rotation speed, provokes a transitory voltage variation that is less than 10%; the voltage returns to its nominal value within 0.1 seconds.

GENERATORS WITH ELECTRONIC SETTING (A.V.R.)
In these types of generators, the voltage precision is maintained within ±1,5%, with speed variations comprised from -10% to +30%, and with balanced loads. The voltage is the same both with no-load and with load; the insertion and release of the full load provokes a transitory voltage variation that is less than 15%; the voltage returns to its nominal value within 0.2–0.3 seconds.

<u>FREQUENCY</u>

The frequency is a parameter that is directly dependent on the motor's rotation speed. Depending on the type of alternator, 2 or 4 pole, we will have a frequency of 50/60 Hz with a rotation speed of 3000/3600 or 1500/1800 revolutions per minute.

The frequency, and therefore the number of motor revolutions, is maintained constant by the motor's speed regulation system.
Generally, this regulator is of a mechanical type and presents a droop from no-load to nominal load which is less than 5 % (static or droop), while under static conditions precision is maintained within ±1%.Therefore, for generators at 50Hz the no-load frequency can be 52–52.5 Hz, while for generators at 60Hz the no-load frequency can be 62.5-63Hz.
In some motors or for special requirements the speed regulator is electronic; in these cases, precision under static operating conditions attains ±0.25%, and the frequency is maintained constant in operation from no-load to load (isochronal operation).

POWER FACTOR - COS φ

The power factor is a value which depends on the load's electrical specifications; it indicates the ratio between the Active Power (kW) and Apparent Power (kVA). The apparent power is the total power necessary for the load, achieved from the sum of the active power supplied by the motor (after the alternator has transformed the mechanical power into electrical power), and the Reactive Power (kVAR) supplied by the alternator. The nominal value for the power factor is cos φ = 0,8; for different values comprised between 0.8 and 1 it is important during usage not to exceed the declared active power (kW), so as to not overload the electricity-generating group motor; the apparent power (kVA) will diminish proportionally to the increase of cos φ.
For cos φ values of less than 0.8 the alternator must be downgraded, since at equal apparent power the alternator should supply a greater reactive power. For reduction coefficients, contact the Technical Service Department.

START-UP OF ASYNCHRONOUS MOTORS

The start-up of asynchronous motors from an electricity-generating group can prove critical because of high start-up currents the asynchronous motor requires (I start-up = up to 8 times the nominal current In.). The start-up current must not exceed the alternator's admissible overload current for brief periods, generally in the order of 250–300% for 10–15 seconds.
To avoid a group oversize, we recommend following these precautionary measures:
- in the case of a start-up of several motors, subdivide the motors into groups and set up their start-up at intervals of 30–60 seconds.
- when the operating machine coupled to the motor allows it, see to a start-up with reduced voltage, star point/triangle start-up or with autotransformer, or use a soft-start system.

In all cases, when the user circuit requires the start-up of an asynchronous motor, it is necessary to check that there are no utilities inserted into the installation, which in the case of a voltage droop can cause more or less serious disservices (opening of contact points, temporary lack of power to control and command systems, etc.).

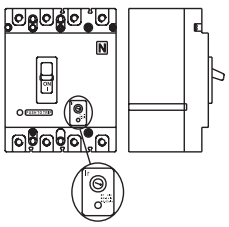
SINGLE-PHASE LOADS

Power to monophase utilities by means of three-phase generators requires some operating limitations.
- In single-phase operation, the declared voltage tolerance can no longer be maintained by the regulator (compound or electronic regulator), since the system becomes highly unbalanced. **The voltage variation on the phases not affected by the power can prove dangerous; we recommend sectioning the other loads eventually connected**.
- The maximum power which can be drawn between Neutral and Phase (start connection) is generally 1/3 of the nominal three-phase power; some types of alternators even allow for 40%. Between two Phases (triangle connection) the maximum power cannot exceed 2/3 of the declared three-phase power.
- In electricity-generating groups equipped with monophase sockets, use these sockets for connecting the loads. In other cases, always use the "R" phase and Neutral.

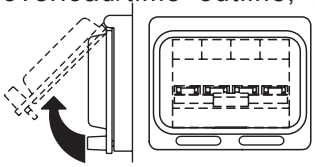
ELECTRIC PROTECTIONS

THERMAL-MAGNETIC SWITCH

The electricity-generating group is protected against short-circuits and against overloads by a thermal-magnetic switch (Z2) situated upstream from the installation. Operating currents, both thermic and magnetic, can be fixed or adjustable in relation to the switch model.



☞ In models with adjustable operating current **do not modify** the settings, since doing so can compromise the installation's protection or the electricity-generating group's output characteristics. For eventual variations, contact our Technical Service Department.
The intervention of the protection feature against overloads is not instantaneous, but follows a current overload/time outline; the greater the overload the less the intervention. Furthermore, keep in mind that the nominal operating current refers to an operating temperature of 30°C, so that each variation of 10°C roughly corresponds to a variation of 5% on the value of nominal current.

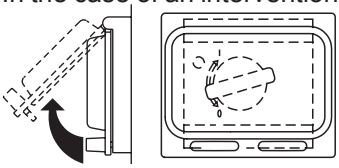


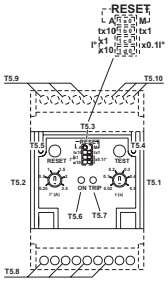
In case of an intervention on the part of the thermal magnetic protection device, check that the total absorption does not exceed the electricity-generating group's nominal current.

DIFFERENTIAL SWITCH

The differential switch or differential relay guarantee protection against indirect contacts due to malfunction currents towards the ground. When the device detects a malfunction current that is higher than the nominal current or the set current, it intervenes by cutting off power to the circuit connected.

In the case of an intervention





by the differential switch, check that there are no sheathing defects in the installation: connection cables, sockets and plugs, utilities connected.

☞ Before each work session, check the operation of the differential protection device by pressing the test key. The electricity-generating group must be in operation, and the lever on the differential switch must be in the ON position.

THERMIC PROTECTION

Generally present to protect against overloads on an individual power socket c.a.

When the nominal operating current has been exceeded, the protection device intervenes by cutting off power to the socket.

The intervention of the protection device against overloads is not instantaneous, but follows a current overload/time outline; the greater the overload the less the intervention.

In case of an intervention, check that the current absorbed by the load does not exceed the protection's nominal operating current.

Allow the protection to cool off for a few minutes before resetting by pressing the central pole.

ATTENTION

Do not keep the central pole on the thermic protection forcefully pressed to prevent its intervention.

USAGE WITH EAS AUTOMATIC START-UP PANEL

The electricity-generating group in combination with the EAS automatic start-up panel forms a unit for distributing electrical energy within a few seconds of a power failure from the commercial electrical power line.

Below is some general operating information; refer to the automatic panel's specific manual for details on installation, command, control and signalling operations.

- ❑ Perform connections on the installation in safety conditions. Position the automatic panel in RESET or LOCKED mode.
- ❑ Carry out the first start-up in MANUAL mode.
  Check that the generator's LOCAL START / REMOTE START switch (I6) is in the REMOTE position.
  Check that the generator switches are enabled (input lever in upward position).
  Position the EAS panel in manual mode by pressing MAN. key, and only after having checked that there are no dangerous situations, press the START key to start the electricity-generating group.
- ❑ During the operation of the generator, all controls and signals from both the automatic panel and group are enabled; it is therefore possible to control its operation from both positions.
  In case of an alarm with a shutdown of the motor (low pressure, high temperature, etc.), the automatic panel will indicate the malfunction that has caused the stoppage, while the generator's front panel will be disabled and will no longer supply any information.

PROBLEM	POSSIBLE CAUSE	WHAT TO DO
ASYNCHRONOUS ALTERNATORS		
No output	1) GFI or Isometer (if installed) have been activated	1) Reset GFI or Isometer. If they are activated again check the cables and tools attached to the auxiliary sockets for short circuits or grounded leads
	2) Thermal protection activated or fuse burned out	2) Reset the thermal protection and check the fuses of the single phase sockets.
	3) Overload	3) Disconnect the load and see if the voltage is normal. If so the load caused the generator to lose its excitation. This can occur when the kWatt of the load is larger than that of the generator or, in the case of inductive loads (motors), when the device has a high starting current. In both cases the solution is a larger genset.
	4) Bad condenser or stator burned out	4) Disconnect all leads from the stator except for those going to the condenser boxIf there is no output from the auxiliary leads check the condenser box. If it is OK replace the stator.
SYNCHRONOUS ALTERNATORS		
No outputMechanical damage	1) Overload - circuit breaker activated	1) Remove the load and insert the circuit breaker. Reconnect the load. If it activates again check the rating of the load and the wiring between load and generator.
	2) GFI or Isometer (if installed) have been activated	2) Remove the load and reset Isometer or GFI. Check without the load. If they activate there is an isolation fault or leakage to ground in the generator or internal wiring. If not, reconnect the load. If they are activated with the load attached there is an isolation fault or leakage to ground in the load or related cables.
	3) Fuse burned out	3) Check the fuses of the single phase sockets.
	4) Stator burned out	4) Disconnect the load and see if the voltage is normal. If there is not output replace the alternator.
	5) Carbon brushes worn out	5) Chek the condition of the brushes (if mounted) and their position.
Mechanical damage	6) Carbon brushes worn out	6) Worn out brushes can damage the brush holder and/or collector.

⚠ WARNING

MOVING PARTS can injure

Have **qualified** personnel do maintenance and troubleshooting work.

- Stop the engine before doing any work inside the machine. If for any reason the machine must be operated while working inside, **pay attention** moving parts, hot parts (exhaust manifold and muffler, etc.) electrical parts which may be unprotected when the machine is open.
- Remove guards only when necessary to perform maintenance, and replace them when the maintenance requiring their removal is complete.
- Use suitable tools and clothes.
- Do not modify the components if not authorized.

- See pag. M1.1 -

HOT surface can hurt you

NOTE

By maintenance at care of the utilizer we intend all the operatios concerning the verification of mechanical parts, electrical parts and of the fluids subject to use or consumption during the normal operation of the machine.

For what concerns the fluids we must consider as maintenance even the periodical change and or the refills eventually necessary.

Maintenance operations also include machine cleaning operations when carried out on a periodic basis outside of the normal work cycle.

The repairs **cannot be considered** among the maintenance activities, i.e. the replacement of parts subject to occasional damages and the replacement of electric and mechanic components consumed in normal use, by the Assistance Authorized Center as well as by MOSA.

The replacement of tires (for machines equipped with trolleys) must be considered as repair since it is not delivered as standard equipment any lifting system.

The periodic maintenance should be performed according to the schedule shown in the engine manual. An optional hour counter (M) is available to simplify the determination of the working hours.

⚠ IMPORTANT

In the maintenance operations avoid that polluting substances, liquids, exhausted oils, etc. bring damage to people or things or can cause negative effects to surroindings, health or safety respecting completely the laws and/ or dispositions in force in the place.

ENGINE and ALTERNATOR

PLEASE REFER TO THE SPECIFIC MANUALS PROVIDED.

Every engine and alternator manufacturer has maintenance intervals and specific checks for each model: it is necessary to consult the specific engine or alternator USER AND MAINTENANCE manual.

VENTILATION

Make certain there are no obstructions (rags, leaves or other) in the air inlet and outlet openings on the machine, alternator and motor.

ELECTRICAL PANELS

Check condition of cables and connections daily.
Clean periodically using a vacuum cleaner, **DO NOT USE COMPRESSED AIR.**

DECALS AND LABELS

*All warning and decals should be checked once a year and **replaced** if missing or unreadable.*

STRENUOUS OPERATING CONDITIONS

Under extreme operating conditions (frequent stops and starts, dusty environment, cold weather,extended periods of no load operation, fuel with over 0.5% sulphur content) do maintenance more frequently.

BATTERY WITHOUT MAINTENANCE
DO NOT OPEN THE BATTERY

The battery is charged automatically from the battery charger circuit suppplied with the engine.

Check the state of the battery from the colour of the warning light which is in the upper part.

- Green colour: battery OK
- Black colour: battery to be recharged
- White colour: battery to be replaced

⚠ NOTE

THE ENGINE PROTECTION NOT WORK WHEN THE OIL IS OF LOW QUALITY BECAUSE NOT CHARGED REGULARLY AT INTERVALS AS PRESCRIBED IN THE OWNER'S ENGINE MANUAL.

In case the machine should not be used for more than 30 days, make sure that the room in which it is stored presents a suitable shelter from heat sources, weather changes or anything which can cause rust, corrosion or damages to the machine.

☞ Have **qualified** personnel prepare the machine for storage.

GASOLINE ENGINE

Start the engine: It will run until it stops due to the lack of fuel.

Drain the oil from the engine sump and fill it with new oil (see page M25).

Pour about 10 cc of oil into the spark plug hole and screw the spark plug, after having rotated the crankshaft several times.

Rotate the crankshaft slowly until you feel a certain compression, then leave it.

In case the battery, for the electric start, is assembled, disconnect it.

Clean the covers and all the other parts of the machine carefully.

Protect the machine with a plastic hood and store it in o dry place.

DIESEL ENGINE

For short periods of time it is advisable, about every 10 days, to make the machine work with load for 15-30 minutes, for a correct distribution of the lubricant, to recharge the battery and to prevent any possible bloking of the injection system.

For long periods of inactivity, turn to the after soles service of the engine manufacturer.

Clean the covers and all the other parts of the machine carefully.

Protect the machine with a plastic hood and store it in a dry place.

In case of necessity for first aid and of fire prevention, see page. M2.5.

IMPORTANT

In the storage operations avoid that polluting substances, liquids, exhausted oils, etc. bring damage to people or things or can cause negative effects to surroindings, health or safety respecting completely the laws and/or dispositions in force in the place.

☞ Have **qualified** personnel disassemble the machine and dispose of the parts, including the oil, fuel, etc., in a correct manner when it is to be taken out of service.

As cust off we intend all operations to be made, at utilizer's care, at the end of the use of the machine. This comprises the dismantling of the machine, the subdivision of the several components for a further reutilization or for getting rid of them, the eventual packing and transportation of the eliminated parts up to their delivery to the store, or to the bureau encharged to the cust off or to the storage office, etc.

The several operations concerning the cust off, involve the manipulation of fluids potentially dangerous such as: lubricating oil and battery electrolyte.

The dismantling of metallic parts liable to cause injuries or wounds, must be made wearing heavy gloves and using suitable tools.

The getting rid of the various components of the machine must be made accordingly to rules in force of law a/o local rules.
Particular attention must be paid when getting rid of:
lubricating oils, battery electrolyte, and inflammable liquids such as fuel, cooling liquid.

The machine user is responsible for the observance of the norms concerning the environment conditions with regard to the elimination of the machine being cust off and of all its components.

In case the machine should be cust off without any previous disassembly it is however compulsory to remove:
- tank fuel
- engine lubricating oil
- cooling liquid from the engine
- battery

NOTE: BCS is involved with custing off the machine **only** for the second hand ones, when not reparable. This, of course, after authorization.

In case of necessity for first aid and fire prevention, see page M2.5.

IMPORTANT

In the cust-off operations avoid that polluting substances, liquids, exhausted oils, etc. bring damage to people or things or can cause negative effects to surroindings, health or safety respecting completely the laws and/or dispositions in force in the place.

Legenda schema elettrico

A : Alternatore
C : Condensatore
D : Interruttore differenziale
G : Presa 400V trifase
H : Presa 230V monofase
I : Presa 110V monofase
M : Contaore
N : Voltmetro
N1 : Spia carica batteria
O1 : Spia pressostato
Q1 : Chiave avviamento
R1 : Motorino avviamento
S1 : Batteria
U1 : Regolatore tensione batteria
S2 : Trasmettitore livello olio
Z2 : Interruttore magnetotermico
F3 : Pulsante stop
G3 : Bobina accensione
H3 : Candela accensione
P4 : Protezione termica
Y5 : Commutatore Serie/Parallelo

Electrical system legende

A: Alternator
C: Capacitor
D: G.F.I.
G: 400V 3-phase socket
H: 230V 1phase socket
I: 110V 1-phase socket
M: Hour-counter
N: Voltmeter
N1: Battery charge warning light
O1: Oil pressure warning light
Q1: Starter key
R1: Starter motor
S1: Battery
U1: Battery charge voltage regulator
S2: Oil level transmitter
Z2: Thermal magnetic circuit breaker
F3: Stop push-button
G3: Ignition coil
H3: Spark plug
P4: Circuit breaker
Y5: Commutator/switch, series/parallel

Legende des schemas electriques

A : Alternateur
C : Condensateurs
D : Interrupteur différentiel
G : Prise 400V triphasé
H : Prise 230V monophasé
I : Prise 110V monophasé
M : Compte-heures
N : Voltmètre
N1 : Voyant charge batterie
O1 : Voyant pressostat
Q1 : Clé de démarrage
R1 : Moteur de démarrage
S1 : Batterie
U1 : Régulateur tension batterie
S2 : Transmetteur niveau huile
Z2 : Interrupteur magnétothermique
F3 : Bouton stop
G3 : Bobine allumage
H3 : Bougie allumage
P4 : Protection thermique
Y5 : Commutateur Série/Parallèle

Stromlaufplan-Referenzliste

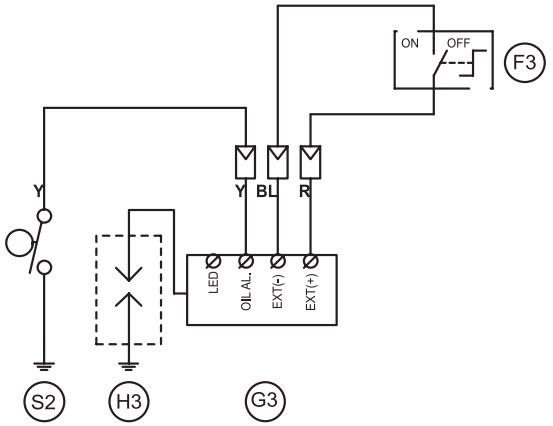
A Generator
C Kondensatorbox
D FI-Schalter (GFI)
G Steckdose 400V 3-phasig
H Steckdose 230V 1-phasig
I Steckdose 110V 1-phasig
M Stundenzähler
N Voltmeter
N1 Warnleuchte Batterieladung
O1 Warnleuchte Öldruck
Q1 Zündschloss
R1 Anlasser
S1 Batterie
U1 Laderegler Batterie
S2 Ölstandssensor
Z2 Thermomagnetschalter (Si-Automat)
F3 Taste Stopp
G3 Zündspule
H3 Zündkerze
P4 Thermosicherung
Y5 Anzeige Wassertemperatur

Leyenda esquema eléctrico

A : Alternador
C : Condensador
D : Interruptor diferencial
G : Toma 400V trifásica
H : Toma 230V monofásica
I : Toma 110V monofásica
M : Cuentahoras
N : Voltímetro
N1 : Piloto carga batería
O1 : Piloto presostato
Q1 : Llave arranque
R1 : Motor arranque
S1 : Batería
U1 : Regulador tensión batería
S2 : Captador nivel aceite
Z2 : Interruptor magnetotérmico
F3 : Pulsador stop
G3 : Bobina encendido
H3 : Bujía encendido
P4 : Protección térmica
Y5 : Contactor Serie/Paralelo

MOTORI HONDA
HONDA ENGINES

AVVIAMENTO A STRAPPO
MANUAL RECOIL STARTER



LEGENDA COLORI KEY COLOR	
R	ROSSO/RED
BL	NERO/BLACK
Y	GIALLO/YELLOW

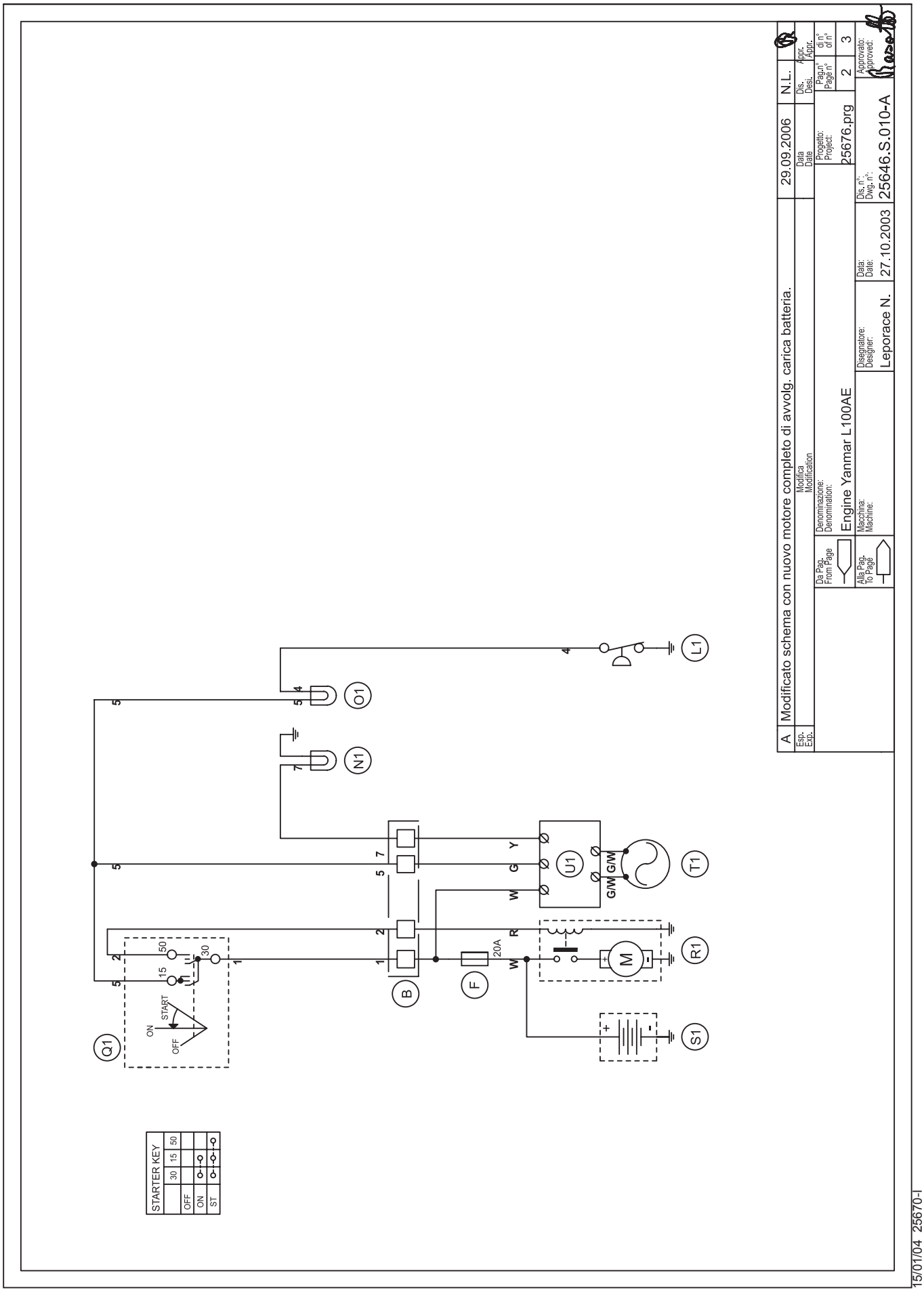
Esp. Exp.	Modifica Modification	Data Date	Dis. Desi.	Appr. Appr.

Da Pag. From Page	Denominazione: Denomination:			Progetto: Project:	Pag.n° Page n°	di n° of n°
	Engine Honda GX 270-UT2 (manual recoil starter-oil alert)			25460.prg	2	3
Alla Pag. To Page	Macchina: Machine:	Disegnatore: Designer:	Data: Date:	Dis. n°: Dwg. n°:	Approvato: Approved:	
		Balducci F.	17.06.2011	25460.S.010		

Ⓘ Schema elettrico
Ⓓ Stromlaufplan
Ⓖⓑ Electric diagram
Ⓔ Esquema eléctrique
Ⓕ Schema electriques
Ⓝⓛ

GE 7000 - 7500 BS/GS
GE 7554 HBS-L
GE 7554 HBS

M
61.1
REV.0-01/04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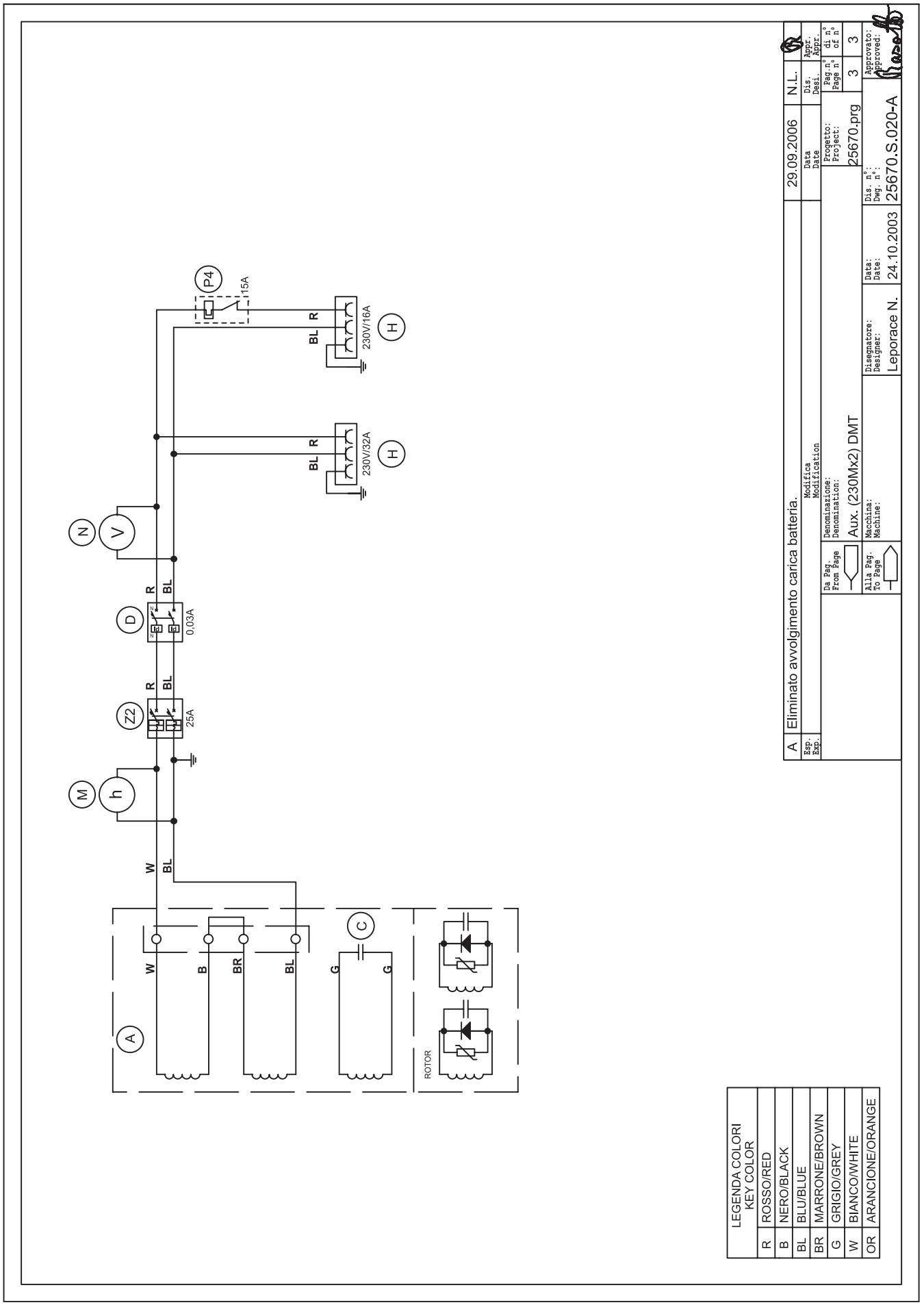
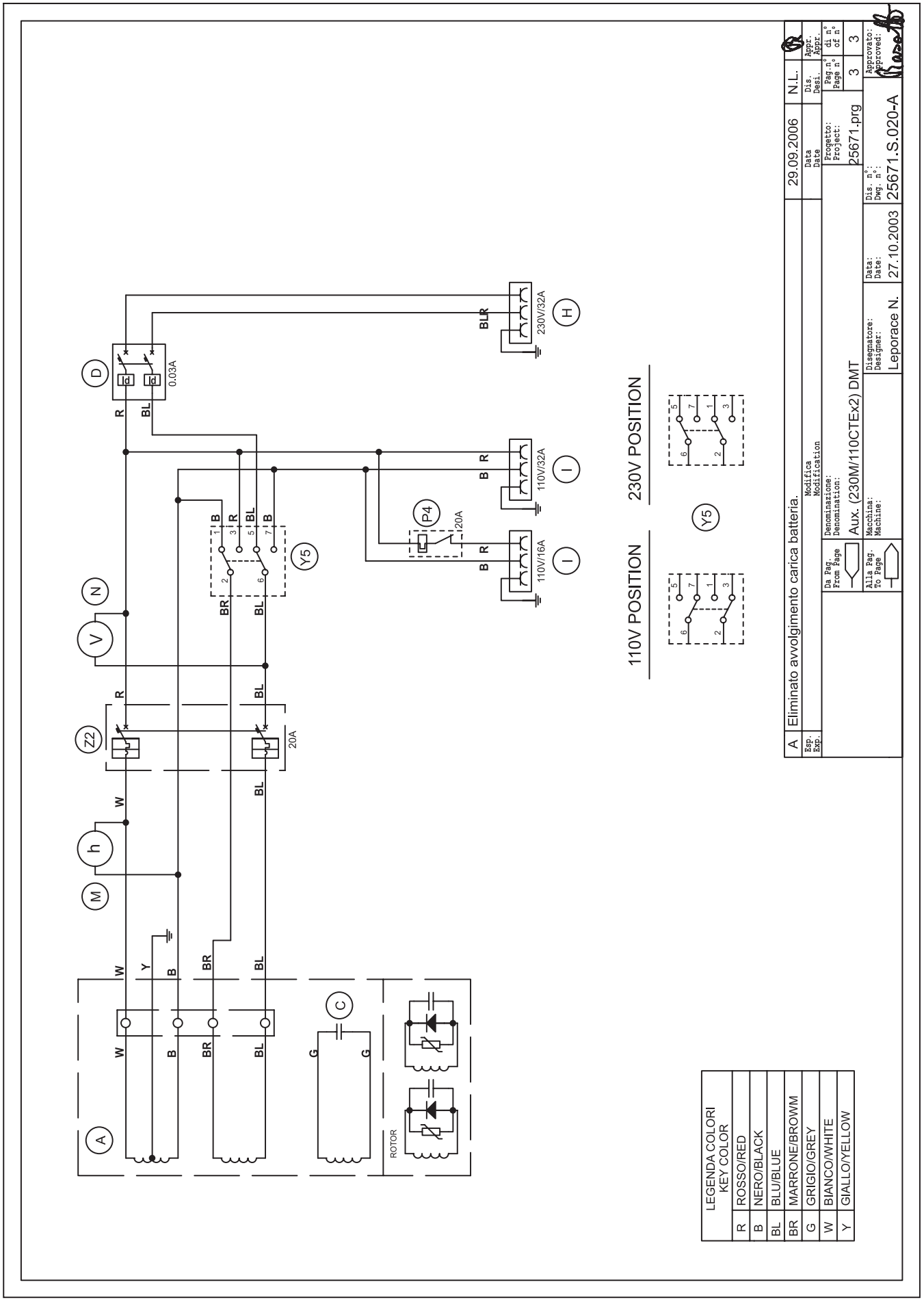
Modificato schema con nuovo motore completo di avvolg. carica batteria.
Esp.
Exp.
Modifica
Modification
29.09.2006
Data
Date
N.L.
Dis.
Appr.
Da Pag.
From Page
Alla Pag.
To Page
Denominazione:
Denomination:
Engine Yanmar L100AE
Macchina:
Machine:
Disegnatore:
Designer:
Leporace N.
Data:
Date:
27.10.2003
Progetto:
Project:
25676.prg
Pag.n°
Page n°
2
di n°
of n°
3
Dis. n°:
Dwg. n°:
25646.S.010-A
Approvato:
Approved:
STARTER KEY
50
15
30
OFF
ON
ST
Q1
START
ON
OFF
B
F
20A
M
U1
T1
R1
S1
O1
N1
L1
G/W
G
Y
W
R

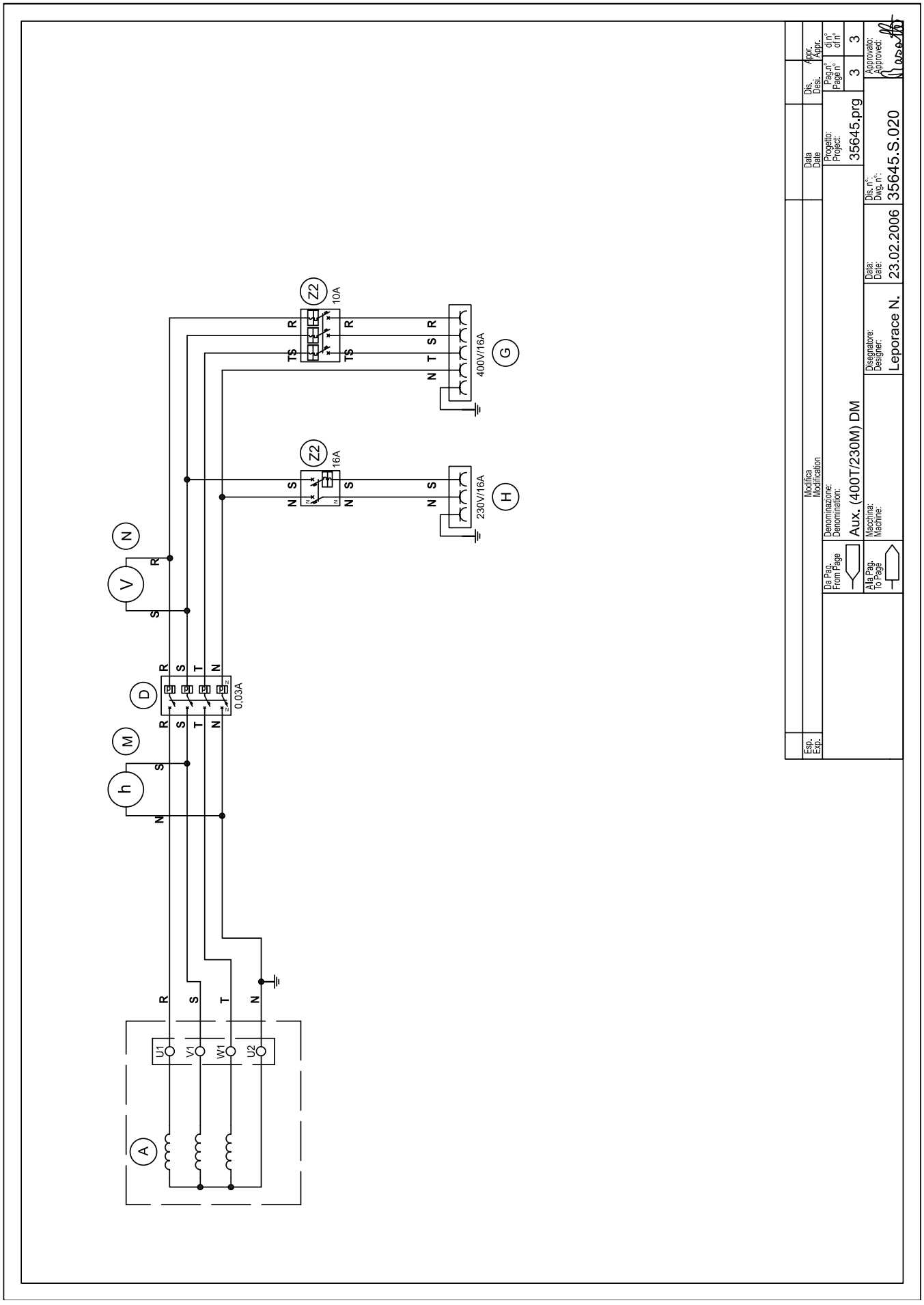

A Eliminato avvolgimento carica batteria. 29.09.2006 N.L.
Modifica / Modification
Denominazione: Aux. (230Mx2) DMT
Macchina:
Disegnatore: Leporace N.
Data: 24.10.2003
Progetto: 25670.prg
Dis. n°: 25670.S.020-A
Pag n° 3 di n° 3
P4
15A
230V/16A
230V/32A
H
N
V
D
0,03A
Z2
25A
M
h
W
BL
R
B
BR
G
C
A
ROTOR
LEGENDA COLORI
KEY COLOR
R ROSSO/RED
B NERO/BLACK
BL BLU/BLUE
BR MARRONE/BROWN
G GRIGIO/GREY
W BIANCO/WHITE
OR ARANCIONE/ORANGE

(I) Schema elettrico (GB) Electric diagram (F) Schema electriques	(D) Stromlaufplan (E) Esquema eléctrique (NL)	230M 110 M x 2 CTE	M 61.4 REV.1-02/09



15/01/04 25670-I

(I) Schema elettrico (GB) Electric diagram (F) Schema electriques	(D) Stromlaufplan (E) Esquema eléctrique (NL)	GE 7500 BS/GS GE 7500 LDES/GS GE 6500 DS-DES/GS	M 61.5 REV.1-02/09



15/01/04 25670-I

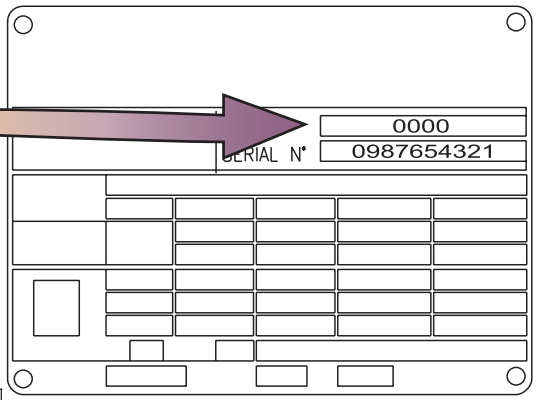
The manufacturer guarantees that any request for spare parts will be satisfied.

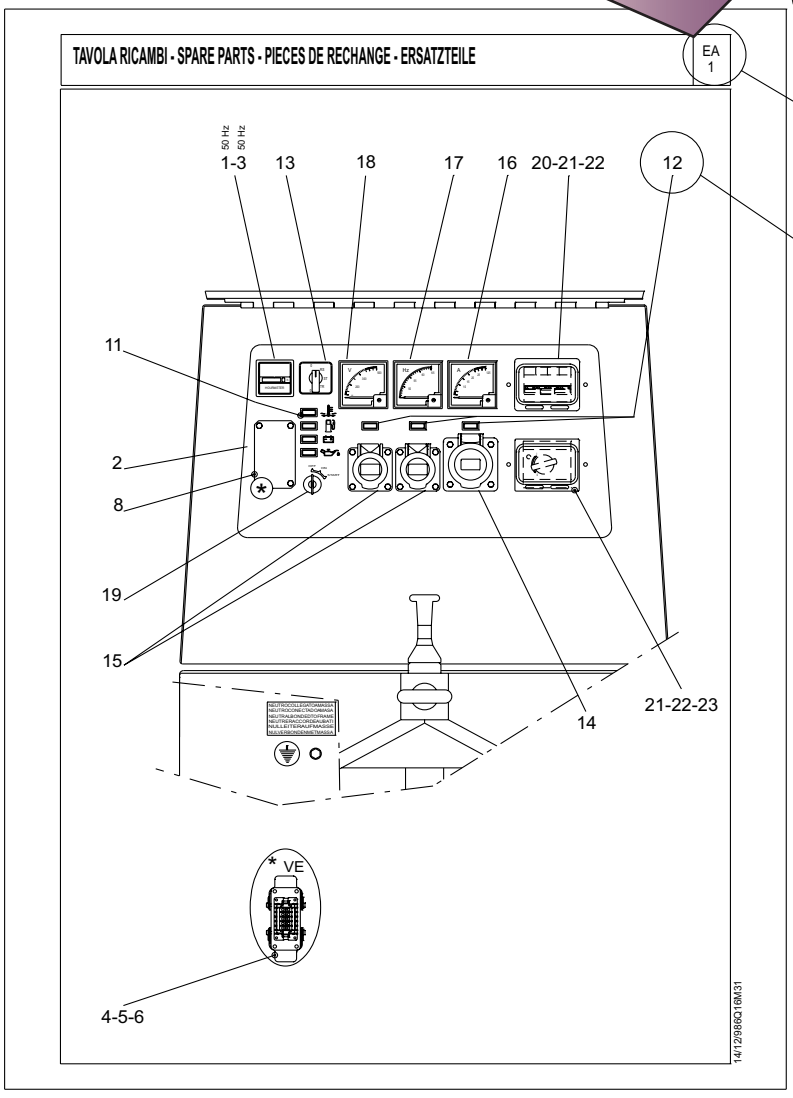
To keep the machine in full working order, when replacement spare parts is required, always ask for genuine parts only.

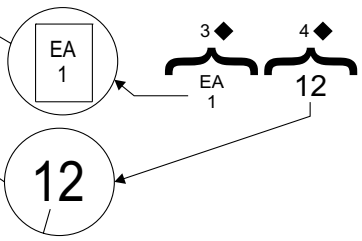
☞ The requested data are to be found on the data plate located on the machine structure, quite visible and easy to consult. ✹

When ordering the spare parts, it is recommended to indicate:

1) ✹ serial number
2) ✹ model of welder and/or generating set
3) ◆ n. table
4) ◆ n. position
5) quantity

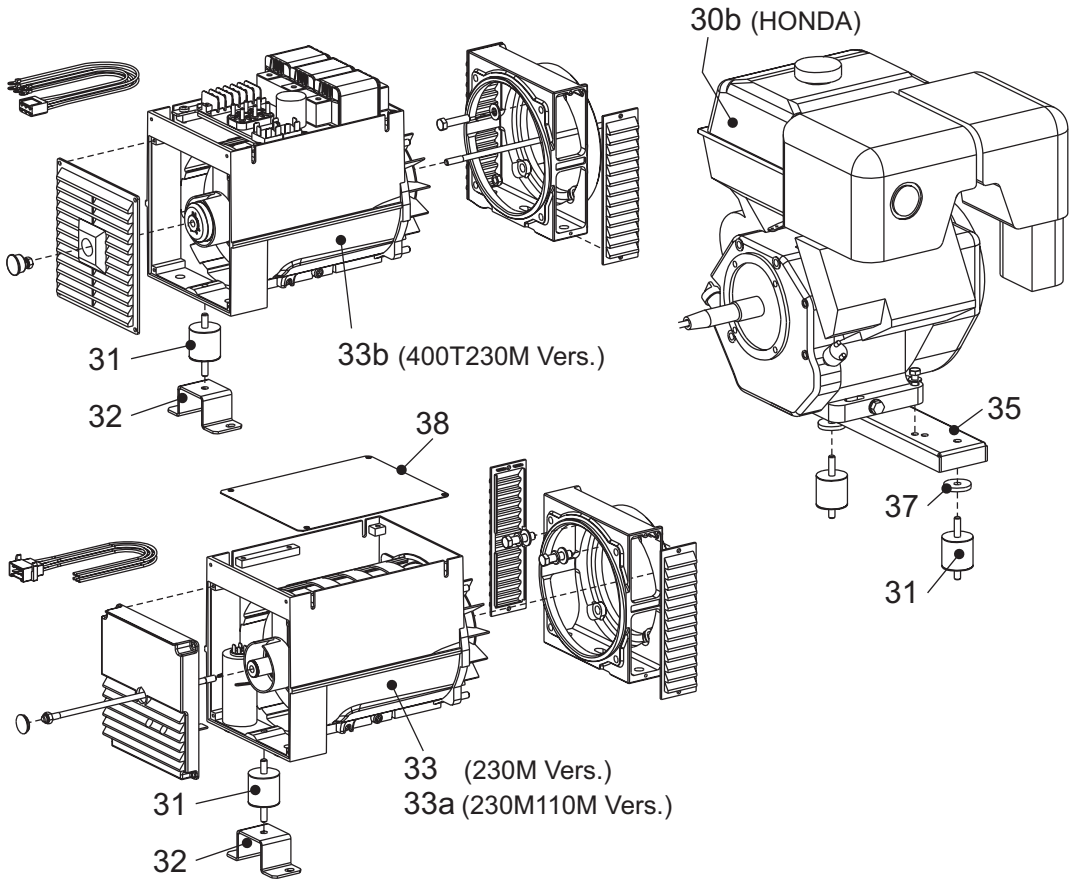


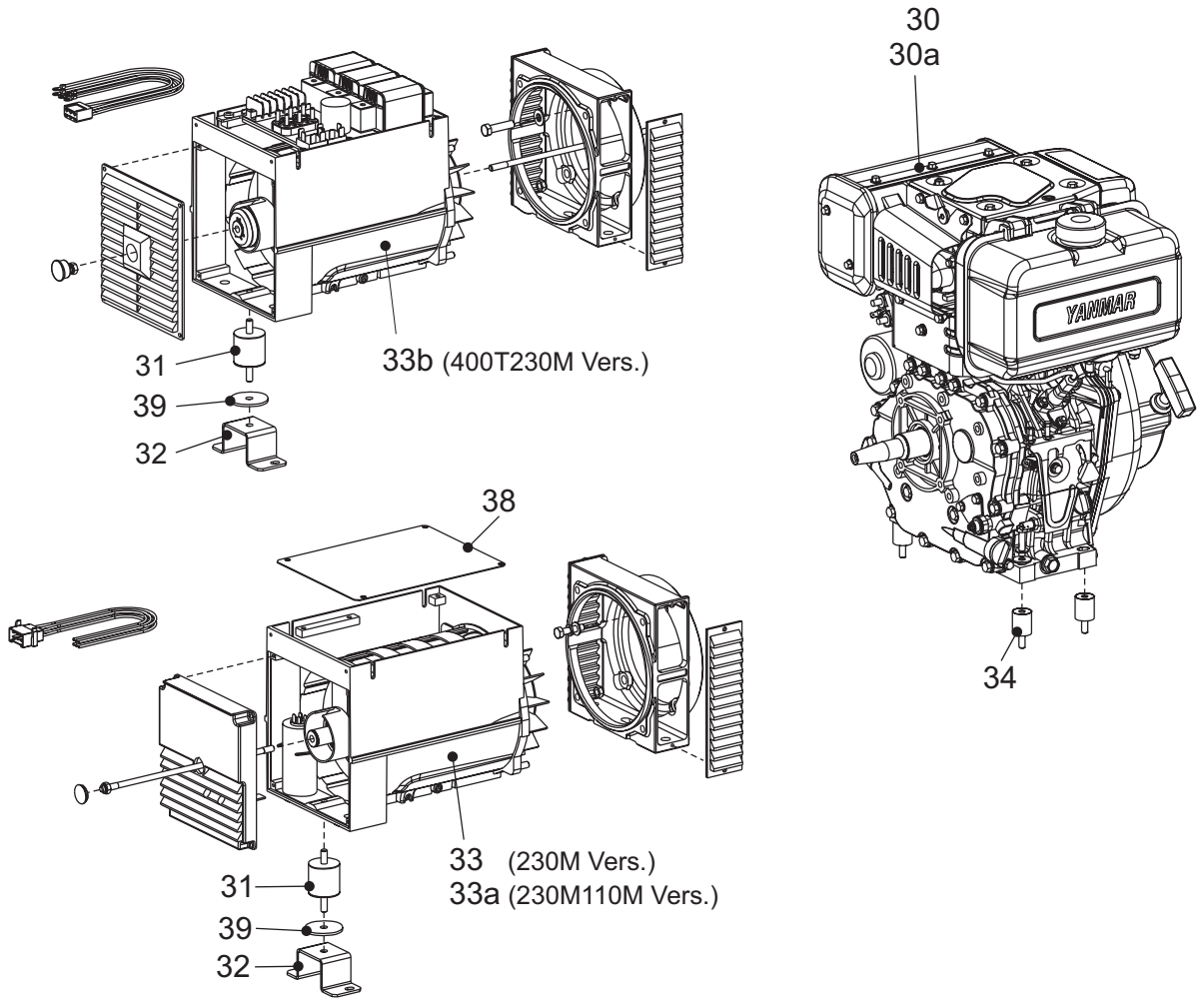




ABBREVIATIONS AND SYMBOLS:

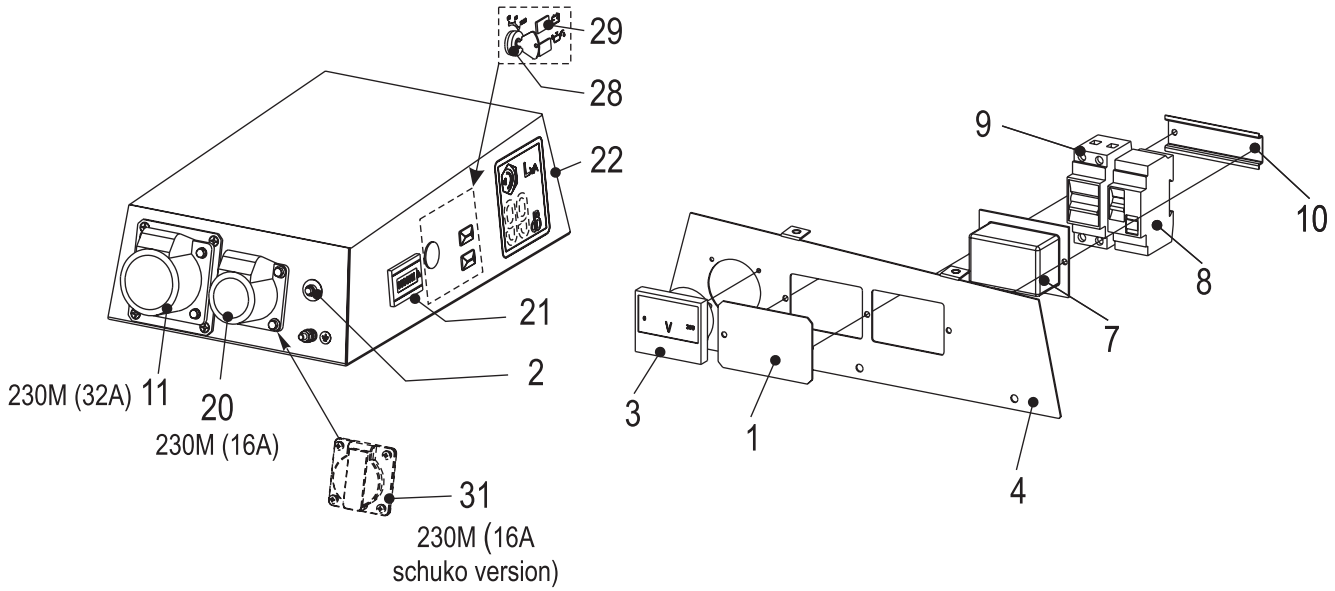
(EV) When ordering, specify the engine type and the auxiliary voltage
(ER) Engine with recoil starter only
(ES) Engine with electric starter only
(VE) E.A.S version only.
(QM) When ordering, specify the length in meters
(VS) Special version only
(SR) By request only

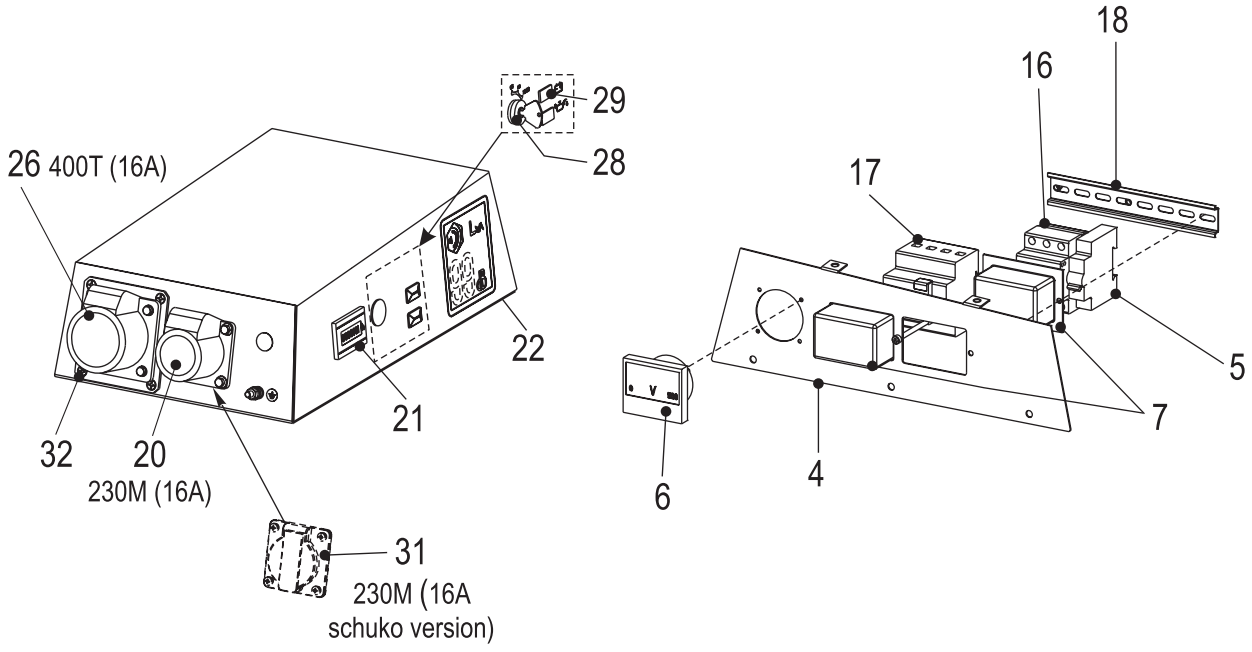

30b (HONDA)
31
32
33b (400T230M Vers.)
35
37
31
38
33 (230M Vers.)
33a (230M110M Vers.)
31
32

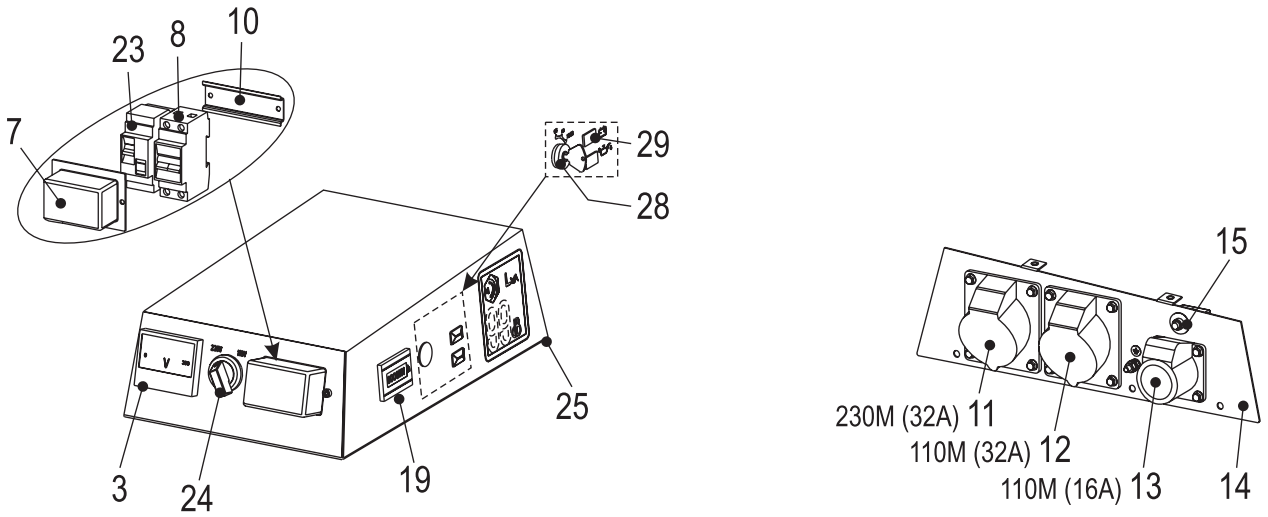

30
30a
YANMAR
31
39
32
33b (400T230M Vers.)
34
38
33 (230M Vers.)
33a (230M110M Vers.)
31
39
32

Pos.	Cod.	Descr.	Note
30	M272702200	MOTORE YANMAR L100AE-DG	DS Version - Fino a REV.1-09/04 Del.12/09
30	M256752200	MOTORE YANMAR L100N	Da REV.2-02/09 Del.12/09
30a	M256862200	MOTORE YANMAR L100AE-DEG	DES Version - era 272722200 Del.169/06-20/10/06
			Fino a REV.1-09/04 Del.261/07-03/12/07-Del.285/07-11/01/08
30a	M256762200	MOTORE YANMAR L100N	Da REV.2-02/09 Del.261/07 -03/12/07 Del.285/07-11/01/08
30b	M272612200	MOTORE HONDA GX 390 K1 (VXB)	BS Version - Fino a REV.1-09/04 Del.216/08-12/12/08
30b	M256702200	MOTORE HONDA GX390 (VXB9)	Da REV.2-02/09 Del.216/08 -12/12/08 -
			Fino a REV.2-02/09 Del.115/11 -28/11/11
30b	M256712200	MOTORE HONDA (UT2)	Da REV.3-02/12 Del.115/11 -28/11/11
31	M102041250	ANTIVIBRANTE	
32	M256703101	SUPP. ALTERNATORE	
33	M356403100	ALTERNATORE	230M Version - era 256703100 Del.169/06-20/10/06
33a	M356413100	ALTERNATORE	230M/110M Version - era 256713100 Del.169/06-20/10/06
33b	M356453100	ALTERNATORE	400T/230M Version - era 256803100 Del.169/06-20/10/06
34	M222401035	ANTIVIBRANTE	DS-DES Version - era 256651035 - 17/01/05
35	M272502035	TRAVERSA SUPPORTO MOTORE	BS Version
37	M306202038	RONDELLA D9x35 SP5	BS Version
38	M256708222	COPERTURA ALTERNATORE	230M - 230M/110M Version
39	M372802038	RONDELLA DI BLOCCAGGIO	DS-DES Version

Pos.	Cod.	Descr.	Note
30	M272702200	YANMAR ENGINE L100AE-DG	DS Version
30	M256752200	YANMAR ENGINE L100N	From REV.2-02/09 Del.12/09
30a	M256862200	YANMAR ENGINE L100AE-DEG	DES Version - Was 272722200 Del.169/06-20/10/06
			Up to REV.1-09/04 Del.261/07-03/12/07-Del.285/07 - 11/01/08
30a	M256762200	YANMAR ENGINE L100N	From REV.2-02/09 Del.261/07-03/12/07-Del.285/07 - 11/01/08
30b	M272612200	HONDA ENGINE GX 390 K1 (VXB)	BS Version - Up to REV.1-09-04 Del.216/08-12/12/08
30b	M256702200	HONDA ENGINE GX390 (VXB9)	From REV.2-02/09 Del.216/08-12/12/08
			Up to REV.2-02/09 Del.115/11 -28/11/11
30b	M256712200	HONDA ENGINE (UT2)	From REV.3-02/12 Del.115/11-28/11/11
31	M102041250	VIBRATION-DAMPER	
32	M256703101	ALTERNATOR SUPPORT	
33	M356403100	ALTERNATOR	230M Version - Was 256703100 Del.169/06-20/01/06
33a	M356413100	ALTERNATOR	230M/110M Version - Was 256713100 Del.169/06-20/10/06
33b	M356453100	ALTERNATOR	400T/230M Version - Was 256803100 Del.169/06-20/10/06
34	M222401035	VIBRATION DAMPER	DS-DES Version - was 256651035 - 17/01/05
35	M272502035	ENGINE SUPPORT BRACKET	BS Version
37	M306202038	WASHER D9x35 SP5	BS Version
38	M256708222	ALTERNATOR COVER	230M - 230M/110M Version
39	M372802038	STOP WASHER	DS-DES Version


29
28
22
21
2
230M (32A) 11
20
230M (16A)
31
230M (16A
schuko version)
9
10
8
7
3
1
4

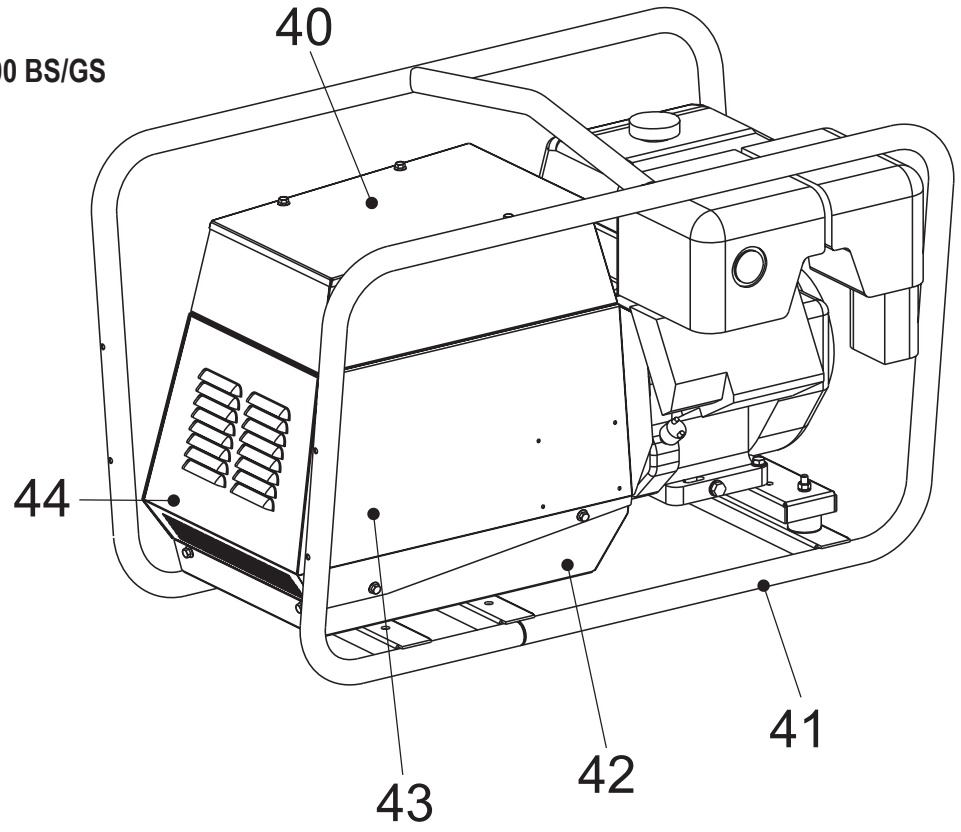

29
28
26 400T (16A)
22
21
32
20
230M (16A)
31
230M (16A
schuko version)
18
16
17
5
7
6
4


23
8
10
7
29
28
25
3
24
19
15
230M (32A) 11
110M (32A) 12
110M (16A) 13
14

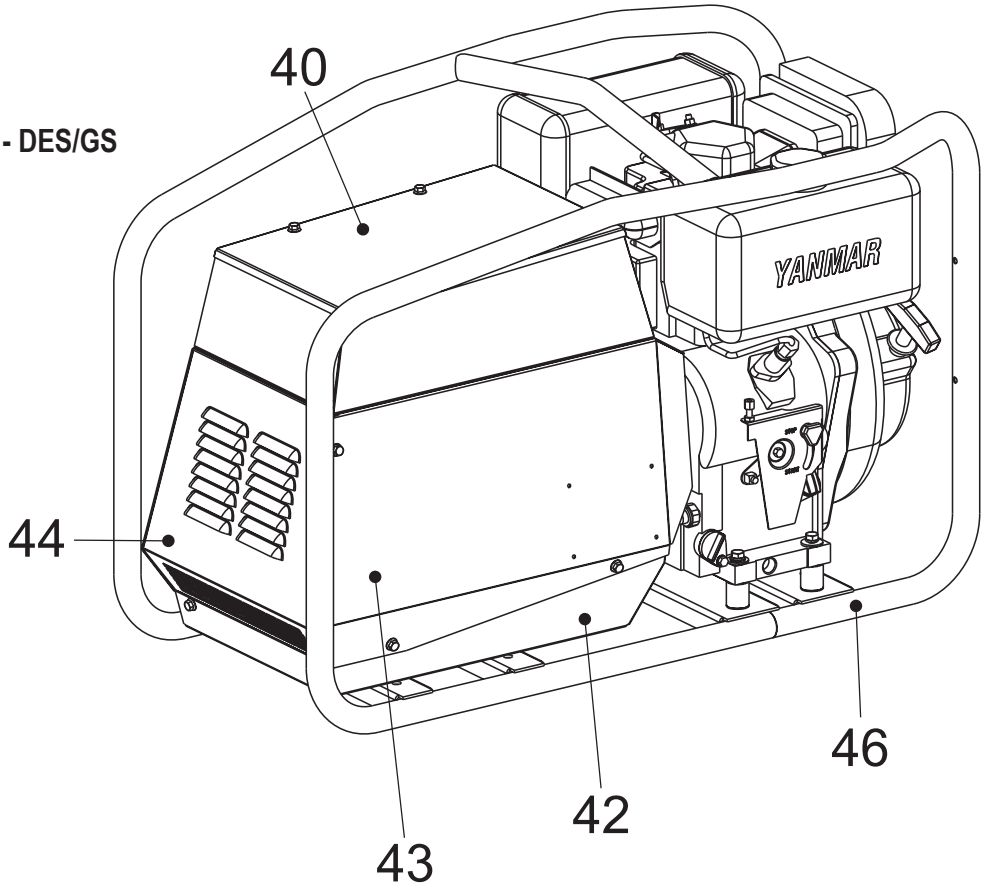
Pos.	Cod.	Descr.	Note
1	M357017027	PIASTRINA CHIUSURA FORO	230M Version
2	M155307107	DISGIUNTORE TERMICO	
3	M103011310	VOLTMETRO	230M - 230M/110M Version
4	M256707020	PANNELLO FRONTALE	230M - 400T/230M Version
5	M734507325	INTERRUTTORE MAGNETOTERMICO	400T/230M Version
6	M105111550	VOLTMETRO FS 500V	400T/230M Version
7	M232027130	CAPPUCCIO PROTEZIONE I.D.	
8	M220237105	Vedi Cod.256007105	230M - 230M/110M Version
9	M256707325	INT.MAGNETOTERMICO 2POLI 25A	230M Version
10	M232027036	GUIDA	230M - 230M/110M Version
11	M105111520	PRESA CEE 220V MONOFASE	230M - 230M/110M Version
12	M105111530	PRESA CEE 32A 110V	230M/110M Version
13	M307047250	PRESA 110V 16A	230M/110M Version
14	M256417020	FRONTALE	230M/110M Version
15	M306467107	PROTEZIONE TERMICA (AUX)	230M/110M Version
16	M256557325	INTERRUTTORE MAGNETOTERMICO	400T/230M Version
17	M105111540	Vedi Cod.219937105	400T/230M Version
18	M1243020	GUIDA PER MORSETTIERA	400T/230M Version - (qm)
19	M356317330	CONTAORE QUADRATO 110V 50Hz	230M/110M Version
20	M307017240	PRESA 220V 16A	230M - 400T/230M Version
21	M105511810	CONTAORE	230M - 400T/230M Version
22	M256407010	SCATOLA ELETTRICA	230M - 400T/230M Version
23	M256127325	INT.MAGNETOTERMICO	230M/110M Version
24	M256417315	COMMUTATORE DI LINEA 25A 2P	230M/110M Version
25	M256417010	SCATOLA ELETTRICA	230M/110M Version
26	M305907270	PRESA CEE 16A 400V 3P+N+T	400T/230M Version
28	M107302460	STARTER A CHIAVE	DES Version
29	M1302040	SPIA 12V	DES Version - Fino a REV.1-09/04 Del.10/08-16/01/08
29	M1302500	SPIA 12V	DES Version - Da REV.2-01/09 Del.10/08-16/01/08
31	M259107241	PRESA SCHUKO 16A 230V - 2P+T	Schuko Version
32	M734517032	PIASTRA ADATTAMENTO	

Pos.	Cod.	Descr.	Note
1	M357017027	HOLE CLOSING PLATE	230M Version
2	M155307107	THERMAL SWITCH	
3	M103011310	VOLTMETER	230M - 230M/110M Version
4	M256707020	FRONT PANEL	230M - 400T/230M Version
5	M734507325	CIRCUIT BREAKER	400T/230M Version
6	M105111550	VOLTMETER FS 500V	400T/230M Version
7	M232027130	CAP	
8	M220237105	See Part n°256007105	230M - 230M/110M Version
9	M256707325	GFI 2P. 25A	230M Version
10	M232027036	FIXING GUIDE	230M - 230M/110M Version
11	M105111520	EEC SOCKET SINGLE-PHASE 220V	230M - 230M/110M Version
12	M105111530	SOCKET, EEC, 32A 110V	230M/110M Version
13	M307047250	SOCKET 110V 16A	230M/110M Version
14	M256417020	FRONT PANEL	230M/110M Version
15	M306467107	THERMOPROTECTION (AUX)	230M/110M Version
16	M256557325	CIRCUIT BREAKER	400T/230M Version
17	M105111540	See part no. 219937105	400T/230M Version
18	M1243020	TERMINAL GUIDE	400T/230M Version - (qm)
19	M356317330	HOURMETER 110V 50HZ	230M/110M Version
20	M307017240	EEC SOCKET 16A, 220V 2P+T	230M - 400T/230M Version
21	M105511810	HOURMETER	230M - 400T/230M Version
22	M256407010	ELECTRICAL BOX	230M - 400T/230M Version
23	M256127325	CIRCUIT BREAKER	230M/110M Version
24	M256417315	COMMUTATOR SWITCH 25A 2P	230M/110M Version
25	M256417010	ELECTRICAL BOX	230M/110M Version
26	M305907270	EEC SOCKET 16A 400V 3P+N+T	400T/230M Version
28	M107302460	STARTER KEY	DES Version
29	M1302040	WARNING LIGHT 12V	DES Version - Up to REV.1-09/04 Del.10/08-16/01/08
29	M1302500	WARNING LIGHT 12V	DES Version - From REV.2-01/09 Del.10/08-16/01/08
31	M259107241	SOCKET SCHUKO 16A 230V 2P+T	Schuko Version
32	M734517032	REDUCTION FOR SOCKET 32A/16A	

GE 7000 - 7500 BS/GS



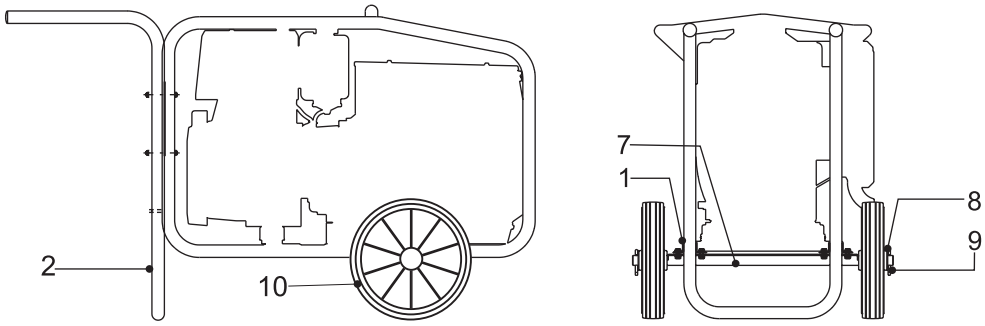
GE 6000 - 6500 DS - DES/GS



Pos.	Rev.	Cod.	Descr.	Note
40		M272707015	COPERCHIO SCATOLA ELETTRICA	
41		M272501050	BARELLA	BS Version
42		M272708205	SCATOLA DI BASE	
43		M256408005	CARENATURA	
44		M272708235	GRIGLIA DI ASPIRAZIONE	
45		M256022275	REGOLATORE DI TENSIONE	DES Version - Fino a REV.1-09/04 Del.169/06 - 20/10/06
46		M272701050	BARELLA	DS - DES Version

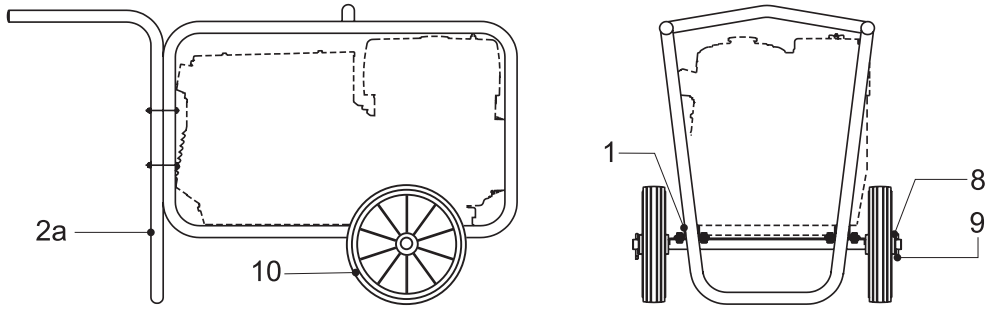
Pos.	Rev.	Cod.	Descr.	Note
40		M272707015	COVER ELECTRICAL BOX	
41		M272501050	FRAME	BS Version
42		M272708205	CASE, BOTTOM HALF	
43		M256408005	COVER	
44		M272708235	INTAKE GRATE	
45		M256022275	VOLTAGE REGULATOR	DES Version Up to REV.1-09/04 Del. 169/06 - 20/10/06
46		M272701050	PROTECTIVE FRAME	DS - DES Version

	CTM 6/2 M212029080	KA 3 REV.1-10/05

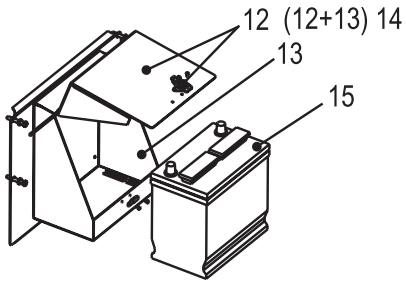


Pos.	Cod.	Descr.	Descr.	Note
1	M107012150	CAVALLOTTO	U-BOLT	
2	M107012130	MANIGLIA	HANDLE	
7	M205311160	ASSALE	AXLE	
8	M205311180	RONDELLA	WASHER	
9	M6075020	COPIGLIA	PIN, SPLIT	
10	M105311650	RUOTA	WHEEL	

	CTM 200 M232120130	KA 4



Pos.	Cod.	Descr.	Descr.	Note
1	M107012150	CAVALLOTTO	U-BOLT	
2a	M208101051	MANIGLIA	HANDLE	
7	M205311160	ASSALE	AXLE	
8	M205311180	RONDELLA	WASHER	
9	M6075020	COPIGLIA	PIN, SPLIT	
10	M105311650	RUOTA	WHEEL	



	PB3 M256020040	KG 3

Pos.	Cod.	Descr.	Descr.	Note
12	M256020549	GR.COPERCHIO COMPLETO	*COMPLETE COVER*	
13	M256029168	CESTELLO PORTA BATTERIA	*BATTERY HOLDER*	
14	M256029160	CESTELLO P/BATT.+COPERCHIO	*BATTERY HOLDER WITH COVER*	
15	M209509150	BATTERIA	*BATTERY*	(fino a/*up to* REV.0 04/97 Del. 74/05 del 15/07/05)
15	M372859150	BATTERIA	*BATTERY*	(da/*from* REV.1 10/05 Del. 74/05 del 15/07/05)

GRUPPI ELETTROGENI MOTOSALDATRICI

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